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THE SOCIAL AND ECONOMIC SITUATION OF THE MEDICAL PROFESSION IN SWEDEN

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THE social and economic situation of the members of the medical profession in Sweden may be said to be good, even admitting certain disadvantages connected with the present system of university education and early postgraduate work in the hospitals. The time devoted to studies is too long according to most authorities, and a plan for reform is at present under discussion in the faculties of medicine. The final examination (Licentiate of Medicine) is usually reached after eight, nine or sometimes more years of medical study. The time before the examination is divided into two parts. The first is purely theoretical and takes about three years. During the second part the students work in all the different departments of a hospital and there is no specialization during this time. Even after this training it is practically impossible for the young doctor to get a situation which will enable him to earn a living. Work as assistant in a hospital without any salary for about a year is almost always necessary in order to get a paid position on the staff of a hospital. This corresponds to the so-called "practical year" in other countries.

Medical education is very expensive, and even though the state pays for practically all the teaching, the students are usually heavily in debt before being able to earn a living. At present there are very few scholarships available; however, it now looks as if the Government had under consideration a plan to increase them.

Of late there has been a growing tendency among the members of the profession to continue their studies after the final examination in order to obtain the degree of Doctor of Medicine. In the five-year period 1908–1913, 32 obtained the advanced degree. In the period 1929–1934, the corresponding figure was 48. There has thus been an increase of 50 per cent in the number who have continued with scientific work. This is to be regarded as a sign of increased interest, but in addition, the degree of Doctor of Medicine adds to the stated number of credits which carry weight when applying for a position.

It is pointed out above that there exist very few scholarships and that most of the students are heavily in debt before being able to earn a living. The present tendency to produce a thesis, when the author has no intention to continue in an academic career, naturally increases very considerably the sum needed for a medical education. The experimental and clinical work entailed necessitates a long period of time for this study (from one to several years). Moreover, the cost of publication is usually paid by the author. It is the custom to publish a thorough report based on the clinical, chemical or other original data used in the discussion of the topic. Thus, a thesis for the degree of Doctor of Medicine usually comprises two hundred to three hundred or more pages.

After the first postgraduate year in a hospital it is usual to apply for a position as assistant on the staff of one of the large communal or provincial hospitals. The private hospitals are few and of no importance for postgraduate training, although it is true that they exist in some of the large communities and are to a greater or lesser extent self-supporting or rely on private funds and donations. During the first years as assistant in a public hospital the salary is usually very low, and the fact that the assistants are obliged to eat and live in the hospitals imposes a rather modest standard of living. Since these appointments are regarded as necessary to obtain a good position later on, there are always applicants, and the provincial authorities have sometimes shown very little interest in improving the working conditions. In order to protect their own interests the younger

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doctors in Sweden have formed a special association and it appears as if its importance would rapidly increase.

An appointment as first assistant in one of the large hospitals usually is relatively sound economically, and this may be said as well of the positions of chief physician and surgeon. These men are appointed by the Central Medical Board of Sweden and the Government, and after reaching the age of sixty-five they enjoy a pension from the state. The procedure for their selection is rather complicated, and as competition for these places is becoming increasingly keen it is very unusual to obtain these positions before the age of forty.

This method of appointment is certainly not an advantage for the parties concerned. The chief qualification involves many years as assistant in different hospitals and especially in the university clinics. Of late the degree of Doctor of Medicine has become an almost indispensable requirement. The chiefs of the different clinics of a hospital, however, are very well situated. They receive a salary from the authority in charge of the hospital. In addition they are allowed to see private patients in the hospital and to charge fees for their treatment. In this respect they may be compared to the consulting surgeons and physicians in other countries. Many of their cases are sent to them by colleagues. On the other hand, they are not supposed to have a large consulting practice in the town or province and their work is almost entirely devoted to their hospitals. As they spend practically their whole time in the hospital they may well be regarded as having a full-time post. This is certainly one of the most important features of the Swedish medical organization.

The treatment in practically all the public hospitals is free or extremely cheap, and the costs are paid not by charitable funds or gifts but by the local authorities through taxation. If a patient has no means of paying for himself, the community to which he belongs pays his fee through the poor-law system. The majority of patients, however, pay from 1.00 to 1.25 crowns (25 to 30 cents) a day. In this fee all sorts of examinations (microscopical, chemical, radiological) and all types of treatment, even the costs of operations, are included. No fee is paid to the doctor. Patients with a somewhat higher yearly income pay 2 to 4 crowns (50 cents to 1 dollar) a day.

If a patient wishes to be treated in a private ward with one or two persons in each room and to receive other extra facilities, the fee is considerably higher, 10 to 15 crowns (2 to 4 dollars) a day. These private wards represent a section of the public hospitals, and were built and are managed by the authority that owns the hospital. All fees revert to the hospitals, with the exception of the special honorariums paid by the private patients to the chief surgeon or physician of the wards and to the consulted specialists. They are as a rule fixed according to a scale of charges approved by the authorities. Such payments are extremely modest when compared to those of most other countries, and medical care cannot be regarded as a very heavy economic burden in Sweden. It is proper to add, however, that the economic situation of a chief of a hospital in Sweden is very good.

During the last decade another division of hospital work, namely the outpatient department (polyclinic), has gained considerably in importance, chiefly as a result of the dominating position of the different technical devices for the diagnosis of disease. There seems to be a very strong tendency among such patients to overestimate the importance of procedures such as an x-ray examination, and it is an everyday experience for patients to demand an x-ray, for example of the head, in the most various, and usually functional, disorders. A colleague of mine, who was then chief of an outpatient department, used to say that he spent much of his time trying to convince the patients that this department of the hospital was not a "photographer's studio." It is not easy to say whether the further development of the polyclinic is to be a happy one or not. In regular outpatient departments the patients only pay 2 to 4 crowns (50 cents to 1 dollar) for a consultation. The fee goes to the hospital,* and the assistants are paid a monthly salary regardless of the amount of work they are obliged to perform. This system of payment has many advantages and a few disadvantages. Both doctor and patient have the feeling that everything that is done has a real meaning for the investigation of the case, and the patient is less apt to feel himself neglected if little can be done, or unjustly charged if there are many complicated examinations. If the salary of the assistants is sufficient, everything is all right, but it seems obvious that the present system may lead to abuses from the authorities in the form of demanding much work for little pay.

As the hospitals are all, with a few exceptions, managed either by the province or the town, they are regarded as belonging to the inhabitants of that district. Patients coming from other parts are admitted but are charged a higher fee.

Many far-sighted medical men regard the large-scale development of polyclinics with some misgiving. The treatment in a big hospital with a large number of patients for each doctor always

*In some communities the assistants receive the honorarium paid by the patient.

tends to be somewhat mechanical. It is clear, on the other hand, that it is the function of a hospital to treat patients with major infirmities from the very start, and thereby the patients should receive better treatment than they could secure from their family doctor. But with this system the large group of minor illnesses cost the community large sums every year, and the patients would probably feel much happier if they were treated at home or in their own village by their own doctor. My impression is, therefore, that the polyclinics ought not to be increased on a very large scale and that the co-operation between the general practitioner and the hospital should be developed as much as possible.

There are, however, several conditions in which the hospitals ought to have a monopoly in the treatment of patients. I refer to diabetes mellitus, pernicious anemia and naturally also such minor surgical injuries as need x-ray examination, for example fractures.

In Upsala we have tried to form a sort of dispensary for the cases with diabetes and pernicious anemia, and to some extent also for the patients with essential hypochromic anemia (iron-deficiency anemia). The regular supervision of these patients is indispensable, and in order to keep the patients under control a system of free medication has been instituted. The patients pay only the ordinary fee for a consultation. The necessary laboratory examinations are performed, and the diabetic patient is given a prescription for a certain amount of insulin. He is entitled to this amount from the hospital either without any payment or at a much reduced price, depending on his economic position. In this way he has also an economic interest in coming back to the polyclinic before his insulin is quite finished in order to obtain a new supply, and his status is then controlled. The system appears to work very well. The same may be said of the treatment of pernicious anemia. No other treatment but injection of a really potent liver extract is used. The patients usually get 10 cc. every four, six or eight weeks, according to their need. The condition of the blood is controlled every time, and the treatment adjusted if there seems to be need for it. No extra charge is made for medication, and all the patient must do is to come to the hospital six or ten times a year to get his injections. With a card-index system the regular return of the patient may be checked, and he is reminded by letter of his promise to come back, if he is shirking. This system appears to work admirably, and it is certainly less expensive even for the hospital than to let the patients come back with severe relapses of anemia, advanced subacute combined degeneration of the spinal cord or diabetic coma. As a matter of fact, none of these complications are now seen among our regular patients in Upsala.

Throughout the country there are also special outpatient departments for those suffering from tuberculosis of the lungs and for their relatives and the contacts for whom examination is gratuitous. The dispensary organization for the detection of early infective cases of tuberculosis and for their isolation works well. In every province there is a central sanatorium, and each has a chief physician who devotes all his time to the hospital. Most cases of severe tuberculosis of the lungs are sent to him in order that he may give his opinion on the case and start the treatment. Many patients are treated in small sanatoriums in their own districts but are always under medical supervision. There is a very effective system of dispensaries with doctors and nurses for the control of patients after their cure in a sanatorium and for the following of sanitary conditions in homes, especially among the children.

Treatment for venereal disease in a contagious stage is free and paid by the state according to the Swedish law for the prevention of venereal disease. As this law has apparently been discussed on several occasions in the United States I shall not enter into this question here.

All the asylums for mental diseases are conducted by the state or by the big cities. The formalities necessary for admission are very complicated in order to render unjustified confinements more difficult. The individual is thus well protected under the present regulations, but the result is that the system is rather inflexible.

For the care of the crippled there is an orthopedic hospital in Stockholm and several in the country, with schools for the children and shops for adults where the patients may learn a suitable craft. The hospital is supported by the Government and by private funds. All the traveling expenses of the patients from any part of Sweden are paid by the hospital, and a very considerable part or the whole of the sum necessary for bandages is also furnished without charge.

Another organization with a central hospital in Stockholm which treats cases from the whole country is the cancer hospital (*Radium Hemmet*). It was first started with private means but has now a grant from the state and a large endowment formed from the nation's gift to the King on the occasion of his seventieth birthday. Most of the radium treatment in Sweden is centralized here, and the patients travel to it at the expense of the hospital. The further development of cases

is studied most thoroughly, and a very comprehensive card index of the patients, their treatment, their visits to the hospital after different periods of time and so on has been established.

The most important part of the medical work outside the hospital is done by the public-health officers. They are appointed by the Government and their hospital training has usually been very thorough (ten years or more). The public-health officer has the control of the sanitary conditions in his district and is obliged to report to the authorities on epidemiological and hygienic questions. But he is also a general medical practitioner. He receives a salary from the state and when retiring at sixty-seven is given a pension. The poor people in the district get their treatment without any payment; the others pay according to a scale of charges approved by the Government. It is very usual for the public-health officer to be medical adviser to the schools and to the railway personnel in his district, and most of the officers enjoy an excellent economic situation. In many districts they have small hospitals for their own use where they are able to perform appendectomies and most minor operations. It is also common in small districts for them to have sanatoriums under their supervision which collaborate with the central provincial sanatorium for pulmonary tuberculosis.

As may easily be inferred from the facts mentioned above, the importance of the general practitioner is considerably less than in most other countries. There is also little use for a system with consulting surgeons and physicians in a country with long journeys between patients. When a public-health officer or practitioner in a town wishes to consult a colleague he usually sends the patient to the wards or to a private room in the hospital. A patient with a letter from a practitioner in the province is usually admitted to the wards without much delay.

The last examination (Licentiate of Medicine) gives the formal right to practice medicine, but the usual procedure is to secure a training in a hospital for several years in order to get the competence necessary for a specialist. As a rule, general practitioners and specialists are found only in the important municipalities, and all the medical work in the rural districts and a great part of that in small cities are carried out by medical men appointed by the Government. It is thus socialized to a certain degree. The present system seems to work very well, and is certainly popular both among the public and the members of the profession.

There are a few general arrangements for public welfare that play a great part in the medical life of the country. One is the governmental pension system for the disabled. If a person suffers from a chronic disease to such extent that his working capacity for the future must be regarded as less than one third of normal, his physician may fill out a form, and if the claims are acknowledged by the Central Board of Pensions, the patient receives a small pension for the rest of his life. This system has on the whole been very successful, but it is obvious that many disputes arise concerning the question of what is less than one third of normal working capacity. The necessity for the doctor not only to help his patient but also to be a judge of the justice of his claims is increasing steadily. My personal impression is that this may lead to a serious conflict not only as regards pensions, but also in other economic matters connected with ill health. There has been an increasing tendency in some parts of the administration of the law to assign to the profession a position equivalent to that of a judge, which certainly ought to be opposed. Our chief aim should always be to cure patients and not to supervise them and act as policemen.

Considerable discussion has arisen of late about the most suitable medical system for the provident societies. Among the medical associations there seemed to be an almost unanimous opinion that a system with only one approved doctor for each society must be avoided. It was regarded as most important that the choice of doctor be left to the patient, and this is the form now in practice. As there is no compulsion to belong to provident societies their importance varies in different provinces. They provide for medical care, medicine and a certain daily payment during the time of illness. As a matter of fact, insurance for accidents during work is compulsory for an employer, and certain occupational diseases are also regarded as belonging to the same group. Swedish legislation presents no special features in this respect.

PIGMENT EXCRETION IN PELLAGRA*

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THE presence of increased amounts of porphyrin in the urine of pellagrins was first reported by Beckh, Ellinger and Spies.[1] This paper was based on a study of 14 cases of "alcoholic" pellagra, and 1 case associated with tuberculous enteritis. A simple test (referred to in this communication as the "B.E.S. test") was employed for the detection of porphyrin in the urine. It has since been shown, however, that the B.E.S. test is not specific for porphyrin,[2, 3] since positive results are mainly due to some other pigment or pigments, which Spies and his associates[4] now call "porphyrin-like substances." Dobriner and his collaborators[5] and Watson[3] have subsequently shown that porphyrin in increased amounts may occur in the urine of alcoholic pellagrins. Since, however, porphyrinuria is known to occur in various diseases accompanied by liver disorder, it is possible that the porphyrinuria of alcoholic pellagra may be due to the effects of alcohol on the liver, rather than to the associated vitamin deficiency. It was decided, therefore, to investigate the pigment excretion in endemic pellagra unassociated with alcoholism.

Twenty-four-hour specimens of urine from 4 cases of endemic pellagra were obtained through the kindness of Dr. Tom D. Spies. He reported to us that these were all mild cases without dermatitis or psychosis. Two patients had previously received nicotinic acid therapy which had not been completely curative and which had been stopped a few weeks prior to the collection of the specimens. The specimens were sent from Birmingham, Alabama, to Boston under toluene, and were examined for ether-soluble porphyrin, one to two weeks after collection, by a modification of the quantitative fluorometric method of Brugsch.[6] In none of the specimens examined was it possible to demonstrate any unusual amount of coproporphyrin. No definite conclusion can be drawn from this finding so far as porphyrinuria in endemic pellagra is concerned, since the patients from whom the specimens were obtained did not suffer from severe pellagra, and furthermore it is possible that porphyrin present in the fresh urine may have decomposed in transit. Some of the specimens, however, gave a positive B.E.S. test.

The B.E.S. test essentially consists of preparing an acetic acid and ether extract of urine and extracting the ether with 25 per cent hydrochloric acid.* The appearance of a pink color in the hydrochloric acid layer is considered by Spies as a positive test for "porphyrin-like substances." Watson[3] was able to demonstrate that the ether extract of urine from 3 cases of alcoholic pellagra contained a red pigment which possessed some of the characteristics of indirubin. In only 1 case, however, was he able to extract any red pigment from the ether by means of 25 per cent hydrochloric acid. This suggests that indirubin, the pigment described by him, is not the pigment responsible for the B.E.S. test. Moreover, it is improbable that indirubin could be the pigment, since indirubin is soluble in ether but insoluble in aqueous solutions, and, therefore, would not be extractable from ether by 25 per cent hydrochloric acid. However, Watson's experiments have drawn attention to the possibility that the pigment obtained in the B.E.S. test may be some other derivative of indol. The following observations are concerned with an investigation of this possibility.

While this work was being prepared for publication Watson[7] independently had extended his investigations on this problem, and he has shown that, in addition to indirubin, a pigment resembling urorosein is formed by the action of hydrochloric acid on ethereal extracts of urine obtained from patients suffering with various diseases, including pellagra.

Urine specimens from 3 of Dr. Spies's cases of endemic pellagra were found to exhibit an unusual reaction: in carrying out Jaffe's test for indican† it was found that a positive test was obtained immediately following the addition of acid, without the usual need for an oxidizing agent. After extracting the indigo blue with chloroform, another pigment, cherry red in color, was ex-

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*This term is used in the sense employed by other authors, namely 1 part of concentrated hydrochloric acid solution in 3 parts of water, or approximately 9 per cent pure acid.

†Jaffe's test is carried out by adding to the urine an equal volume of concentrated hydrochloric acid and a few drops of calcium hypochlorite solution as an oxidizing agent. Indican is oxidized to indigo blue, which is extracted with chloroform.

tracted with amyl alcohol. This is customarily known as the urorosein reaction.

The presence of indican in the urine of pellagrins has been recorded previously,[8, 9] but no reference has been found to the occurrence in pellagrous urine of this direct indican reaction (a positive reaction in the absence of added oxidizing agent). However, direct indican and urorosein reactions have been reported in other pathologic conditions. Herter[10] attributed such reactions to bacterial decomposition of the urine, but Ross[11] showed that a direct urorosein reaction may be given by freshly passed urine. In the course of the present investigation urine specimens from 100 patients selected at random have been tested for indican. Direct indican reactions were observed in specimens from 15 patients suffering from a variety of diseases.* Specimens giving this reaction also showed a positive B.E.S. test. In some cases a direct indican reaction was not obtained when the urine was first passed, but developed after the urine had been allowed to stand. This, however, was not due to bacterial action, since fresh specimens maintained in a sterile condition after Berkefeld filtration showed the same phenomenon.

These observations suggest that urine specimens which give a positive reaction for indican in the absence of added oxidizing agent contain some abnormal agent capable of oxidizing indol derivatives in the presence of strong acid. Since the unoxidized indol derivatives which may occur in the urine are all soluble in ether, the oxidation of these derivatives might take place under the conditions of the B.E.S. test, if the abnormal oxidizing agent were also ether-soluble. The following results demonstrate that this apparently is the explanation of a positive B.E.S. test.

Specimens of urine from 2 of Dr. Spies's cases and from 3 non-pellagrous patients, all exhibiting a positive B.E.S. test, were studied. The B.E.S. test was carried out on 50-cc. samples of urine as follows: The sample was brought to pH 4 with glacial acetic acid and extracted with twice its volume of ether. The ether layer, which showed no trace of red coloration, was washed twice with water and extracted with small amounts of 25 per cent hydrochloric acid. A pink pigment appeared in the hydrochloric acid extracts, and the extraction was repeated until no more color was obtained. After the extracted ether had been allowed to stand for twelve hours over 25 per cent hydrochloric acid a second yield of pigment was obtained, and was found to have the same properties as the first. The pigment could not be extracted from the 25 per cent hydrochloric acid solution by chloroform or benzine but was readily extracted by amyl alcohol. The amyl alcohol solution slowly changed color on exposure to light, becoming red-brown instead of pink. On the addition of excess alkali the hydrochloric acid solution turned brownish yellow, but when the solution was again made acid the pink color was restored. Spectroanalysis of the amyl alcohol solutions showed two absorption bands with maxima in the vicinity of wave lengths of 500 and 530 millimicrons respectively, together with a general reduction in transmission at the violet end of the spectrum (Fig. 1). In the case of the pigments derived from the pellagrous urines the band at 500 millimicrons was very faint; in the other 3 cases this band was more prominent. In each case the change of color which took place on exposure to light was accompanied by disappearance of the characteristic absorption spectrum.

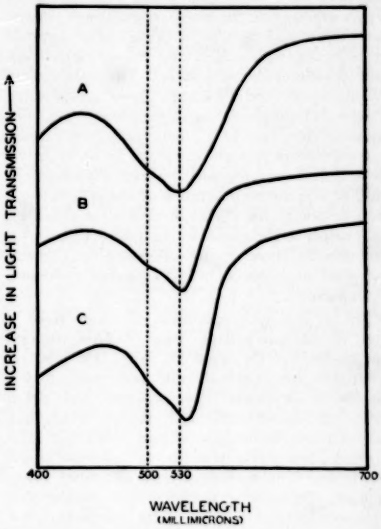

FIGURE 1.

Spectro-analysis of the B.E.S pigment derived from the urine of 2 cases of endemic pellagra (A *and* B), *and of the pigment obtained from the oxidation of indol-acetic acid* (C), *showing the position of their absorption bands. These records were obtained with an automatic recording spectrograph.*

In all these properties the B.E.S. pigment closely resembles those pigments which have been de-

*The possibility that these direct reactions are partly due to some oxidizing agent present as an impurity in the hydrochloric acid has been investigated. No such impurity could be detected by means of potassium iodide and starch solutions.

scribed very frequently in the past as occurring in urines from diseased subjects and have been variously named urorosein, nephrorosein and skatol red. The properties described as characteristic of these three pigments are essentially similar, although reports of minor differences in solubility and spectral characteristics have led some to conclude that they are not identical. Their chemical nature does not appear to have been determined, although as Herter[12] showed, the pigment derived from the oxidation of indolacetic acid has the same properties as those ascribed to urorosein. It would seem highly probable that these pigments are mixtures of several closely related chemical entities, and may be derived from the oxidation of more than one compound of indol. This might account for the minor differences in the early description of these pigments.

Since urorosein has been described as being identical with the pigments obtained by the oxidation of indolacetic acid, a comparison was made between oxidized indolacetic acid and the B.E.S. pigment. Indolacetic acid* in aqueous solution was treated in the presence of an equal volume of concentrated hydrochloric acid by the addition of potassium nitrite. The pigment so formed was magenta but turned rapidly to a deep cherry red. With one exception, the properties of this red pigment were found to correspond with the properties previously described for the B.E.S. pigment, except that the spectrum showed a minor difference, in that the principal absorption band in the region of 530 millimicrons reached its maximum 5 to 7 millimicrons nearer to the red end of the spectrum (Fig. 1).

SUMMARY

No increase in porphyrinuria was found in 4 cases of endemic pellagra unassociated with alcoholism. This finding, however, must await further confirmation since the urine samples were shipped from a distance and the porphyrin may have decomposed in transit.

It is concluded that a positive B.E.S. test is due to the oxidation of ether-soluble indol derivatives in the presence of hydrochloric acid, with the production of pigments giving a characteristic urorosein reaction. The pigments responsible for this reaction are insoluble in ether but soluble in water, and would therefore appear in the hydrochloric acid layer. They have spectral lines at 500 and 530 millimicrons.

The presence of substances in the urine of pellagrins capable of giving the urorosein reaction confirms the recent investigations of Watson.[7]

As a result of the present investigations and those of Watson it would seem more proper to refer to the B.E.S. test as indicating the presence of pigments capable of producing the urorosein reaction rather than to refer to such pigments as porphyrin-like substances, which they in no manner resemble.

The nature of the oxidizing agent which is responsible for the unusual ease with which these indol derivatives are oxidized, both in ethereal and in aqueous solutions, is being further investigated.

*Indol and indolacetic acid were supplied through the courtesy of Smith, Kline and French Laboratories, Philadelphia, and Merck and Company, Incorporated, Rahway, New Jersey.

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ALLERGIC REACTION TO INSULIN*

Report of a Case

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BOSTON

ALLERGIC reactions following injections of crystalline insulin, although reported by a number of observers,[1-7] are not common. It is conceivable that occasionally they may be the result of sensitivity to the components of the solvent (glycerin) or to the preservative it contains (tricresol or phenol), but usually insulin itself appears to be responsible. This was true in the case to be reported.

REPORT OF CASE

The patient, an undernourished, non-diabetic man 53 years old, who several years previously had been treated with insulin for the purpose of gaining weight, wished to repeat the treatment. In view of the allergic reactions that occurred during this second course of treatment some of the historical data in the case may be important because of their possible allergic implications.

He had suffered from headache since childhood, more severely in recent years. The headache had been migrainous in character, usually unilateral, beginning in the temporofrontal region with a feeling of severe pressure over the eye, often extending over the entire head and accompanied by nausea. He had had eczema. For a time, treatment with ergotamine tartrate ameliorated the headache, but during the previous few months it had failed to give relief. His mother also had suffered from migraine.

About 7 years previously the patient had taken 5 units of insulin three times a day for the purpose of gaining weight. He gained 16 pounds and felt better in general while he took insulin but stopped the injections after 4 months because of the inconvenience. Thereupon his weight diminished again. He had always been tall and thin: his height was 6 feet 3 inches; his greatest weight was 152 pounds in 1904, the lowest 100 pounds in 1918 after an attack of influenza.

Because of his previous favorable experience with insulin he decided to resort to it again. On July 2, 1938, he began taking 5 units of standard insulin three times a day. Nine days after beginning the treatment large erythematous itching patches of urticaria appeared on the flexor surfaces of the arms and wrists, whereupon the injections were stopped. On the following day the lesions had extended over the entire body, then they gradually faded and were gone 3 days later. The insulin used had been made from pork pancreas. An injection of 5 units of insulin made from beef was then tried. Shortly afterward the patient had a severe chill, a temperature of 101°F., recurrence of generalized urticarial eruption and a sensation of severe substernal pressure and pain which required an injection of morphine for relief. The blood pressure during the attack was 80/60. The treatment was temporarily abandoned, but about 4 months later it was decided to try crystalline zinc-insulin (Stearns), made from beef. Ten minutes after the injection of 5 units there was a burning sensation of the eyes, the eyelids began to swell and looked inflamed, a severe pain and a sense of constriction were felt in the chest, there was a feeling of fullness in the throat, erythematous urticarial wheals appeared all over the body, a chill followed and the blood pressure fell to the same low level as with the previous experience. The reaction was in every way similar to the others, although slightly less severe.

Endermal tests were made with extracts of pork and beef muscle, with solutions of crystalline zinc-insulin and with solutions of glycerin and tricresol. The solutions of the proteins of beef and pork were diluted to contain 0.1 mg. nitrogen per cubic centimeter. The amount injected was 0.01 cc. All the intracutaneous tests, with the exception of that made with insulin, gave negative results. Where the insulin was injected an irregular wheal was produced measuring 23 by 33 mm., with long pseudopodia (Fig. 1). There was marked itching. The wheal

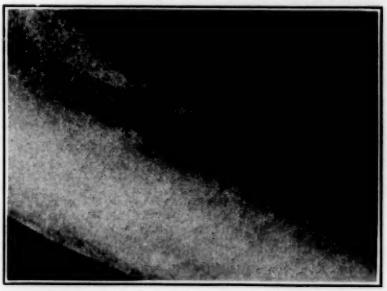

Figure 1. *Intradermal Reaction to Insulin.*

was surrounded by an erythematous area measuring 65 by 80 mm. In addition to the local reaction there were general symptoms similar to but much less severe than those observed after the injection of the therapeutic amounts.

In a number of published cases of allergic reaction to insulin the sensitivity was transferable to normal skin by injecting it with the patient's serum, according to the technic of Prausnitz-Küstner. The serum of our patient did not contain sensitizing antibodies demonstrable by this passive-transfer technic. This was true also in the cases reported by Grishaw[8] and by Murphy, Beardwood and Miller.[6]

Rapid desensitization was accomplished by a method similar to that described by Corcoran[9] and others.[10-12] The schedule of the desensitizing injections is shown in Table 1. The initial small amounts, beginning with 0.01 cc. (0.4 units), were given intracutaneously and elicited minor local reactions; the later subcutaneous injec-

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tions did not. The amounts were increased rapidly to 0.2 cc. (8 units) in 14 hours. After that the patient took 5 units three times a day without untoward manifestations until about a month later, when allergic symptoms recurred and indicated redevelopment of sensitivity. No further treatment was attempted.

Although the results of the tests indicate that the patient was hypersensitive to insulin itself, it is difficult to believe, as pointed out also by Allan and Scherer,[10] that he could "become hypersensitive to a material which is produced in his own body." The possibility of species-specific molecular differences between animal and human insulins may be an explanation, although crystalline insulins derived from different sources appear to be identical. Since the exact composition of crystalline insulin is not known, however, it is possible that commercial crystalline insulin contains something else besides the hormone itself. This possible explanation receives support from the studies of Hansen and Eyer,[13] who found that twice-crystallized insulin gave much weaker reactions than did crude crystalline insulin. Furthermore, in our case and in cases reported by Baker,[12] Allan and Scherer[10] and Campbell, Gardiner and Scott[2] the reactions from crystalline insulin were less severe than those following injections of standard insulin, and in a case mentioned by Joslin,[14] the patient was "extraordinarily sensitive to the four regular American preparations of insulin" but not to a crystalline form. If insulin itself were at fault one should expect the reactions to be equally intense, although in our case a possible desensitizing effect of preceding injections of standard insulin may explain the lesser reactions that followed the subsequent injections of the crystalline insulin. In the cases reported by Tuft[3] and Davidson[5] the reactions from crystalline insulin were just as pronounced as with other forms, and in Murphy, Beardwood and Miller's[6] first case they were even greater.

TABLE 1. *Rapid Method of Desensitization in a Non-Diabetic Case of Hypersensitivity to Insulin.*

SITE AND TIME OF INJECTION	AMOUNT OF INJECTION		REACTION
	cc.	*units*	
INTRACUTANEOUS			
10:30 a.m.	0.01	0.4	Wheal 23 by 33 mm., with long pseudopodia, erythema 65 by 80 mm., marked itching.
12:00 m.	0.01	0.4	Small wheal, erythema 25 mm.
1:40 p.m.	0.03	1.2	Small wheal, erythema 15 mm.
2:50 p.m.	0.03	1.2	None
3:40 p.m.	0.04	1.6	Slight erythema
6:15 p.m.	0.05	2.0	None
SUBCUTANEOUS			
8:15 p.m.	0.02	0.8	None
9:00 p.m.	0.04	1.6	None
9:25 p.m.	0.06	2.4	None
10:00 p.m.	0.08	3.2	None
10:30 p.m.	0.12	4.8	None
11:00 p.m.	0.16	6.4	None
12:00 p.m.	0.20	8.0	None

Abel, quoted by Davidson,[5] rejected the theory that reactions to crystalline insulin are due to contaminants rather than to the hormone itself. He insisted that there is no ground for the statement that insulin is not a pure hormone but a mixture of substances, and he offered as the most plausible theory the conception that the different insulins, although having the same composition and crystalline form, "differ in respect to the internal arrangement of their component amino-acids."

The relation of diabetes to allergic diseases in general is an interesting one. In our experience asthma or hay fever has rarely been observed together with diabetes in the same patient. Joslin[15] also comments on the "rarity with which it [asthma] is encountered in diabetes." Kern[16] has shown that diabetes and allergy have a high reciprocal familial incidence but that they seldom occur in the same patient at the same time. Joslin[15] cited a case in which asthma disappeared with onset of diabetes, and in the cases reported by Kräupl[17] and Nonn[18] improvement of diabetes followed attacks of allergic reactions to insulin. Kräupl thought it possible that the diabetic individual is not predisposed to allergic reactions.

It may be of significance in this connection to note that our patient (the only one with such severe general manifestations of sensitivity to insulin we have seen) and one reported by Sammis[1] did not have diabetes. Although definite conclusions cannot be drawn from this, it may mean that the incidence of allergic reactions to insulin is greater in the relatively small number of nondiabetic persons treated with insulin than it is in insulin-treated patients with diabetes.

The results in our case demonstrate that rapid desensitization is feasible and effective. It is superior to the slower methods used by Herold,[7] Hansen and Eyer,[13] Bryce,[19] and Collens, Lerner and Fialka,[20] not merely because it is less time-consuming but especially because it may be a life-saving measure when immediate and intensive treatment with insulin becomes imperative in such emergencies as coma or postoperative acidosis in hypersensitive patients with diabetes.

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REPORT ON MEDICAL PROGRESS

THE DIAGNOSIS OF THE VARIOUS ARTHRITIDES*

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MANY of the etiologic, diagnostic and therapeutic problems pertaining to the various arthritides are old medical controversies. They are excellent examples of the unknowns of medicine that confront the busy practitioner and the supposedly learned specialist. Although advances in the field of rheumatic diseases have been less numerous and less dramatic than in some of the other branches of clinical medicine, substantial contributions have been made in recent years. They are due largely to increasing interest and to the recently added facilities available for workers studying and caring for these socially and economically important diseases.

GENERAL INCIDENCE, SOCIAL AND ECONOMIC IMPORTANCE

Among the chronic diseases in the United States, "rheumatism ranks first in prevalence, second in producing chronic disability, second in invalidity (permanent disability) and fourteenth in causing death."[1] Similar data have been compiled for the Commonwealth of Massachusetts by Bigelow and Lombard.[2] These workers estimated that there were 140,000 individuals in this state suffering from rheumatism, 80,000 with heart disease, 56,000 with arteriosclerosis, 31,000 with Bright's disease, 25,000 with active tuberculosis and 10,000 with cancer. Nearly 85 per cent of the 140,000 individuals were over forty years of age. Complete physical disability was present in 4.2 per cent, or approximately 6000 of the cases. Thirty per cent or approximately 42,000 individuals were partially disabled. The social and economic problems resulting from these diseases are manifold. The days of work lost and the resulting loss of income are most impressive even in this social and economic age, where figures mentioned usually run to seven digits.

CLASSIFICATION OF JOINT DISEASES

Classification of diseases of joints is essential to the diagnosis of the various arthritides. Many classifications have been proposed but no one of them has been universally adopted. The reason for this state of affairs is obvious. Our present inadequate knowledge of some of the arthritides does not permit the employment of the more detailed and all too cumbersome classifications.[3-5] The more simple classifications unfortunately are based on erroneous and unproved assumptions and therefore are of little practical use.[6, 7] Considering the existing limitations of our knowledge of joint diseases, a classification based on etiology is preferable to one based on morbid anatomy. An etiologic classification is much more useful to the practicing physician in that the therapy indicated is more readily apparent once the diagnosis is made. Such a classification is readily made more complete and more useful as our etiologic knowledge of the arthritides advances. Preferring this type of classification, we use the one originally proposed by Allison and Ghormley,[8] with slight modifications.[9] Although not so complete as some might desire, its simplicity should appeal to the busy practicing physician.

I. Joint diseases of known etiology.
   1. Traumatic; that is, associated with and the result of acute trauma, such as sprains, strains, internal derangements, fractures into the joint, traumatic synovitis and so forth.

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2. Infectious; that is, due to the tubercle bacillus, gonococcus, streptococcus, staphylococcus, meningococcus and other organisms.
3. Neuropathic; that is, associated with tabes, syringomyelia, nerve injuries and leprosy.
4. Metabolic; that is, associated with gout.
5. Constitutional; that is, associated with hemophilia.
6. Anaphylactic; that is, associated with serum sickness.

II. Joint diseases of unknown etiology.

1. Degenerative joint disease (degenerative, hypertrophic or osteoarthritic).
   a. Primary; that is, the type so frequently encountered after the fourth decade of life. The joint disease resulting from the daily minor traumas of increasing age is pathologically indistinguishable from primary degenerative joint disease and is therefore classified as such.
   b. Secondary; that is, the degenerative joint changes which ensue in consequence of intra-articular damage resulting from a previous acute arthritis, such as any of the acute specific infectious arthritides or acute recurring gouty arthritis or that due to repeated trauma.
2. Rheumatoid arthritis (proliferative, atrophic or chronic infectious arthritis).
   a. Typical.
   b. Atypical (often called "nonspecific infectious arthritis" or "focal infectious arthritis").
   c. Spondylitis (Strümpell-Marie type, spondylitis rhizomelica, spondylitis deformans, spondylitis ankylopoietica, spondylitis ossificans ligamentosa or rheumatoid arthritis of the spine).
3. Rheumatic fever.

III. Diseases of other skeletal structures of unknown etiology.

1. Tenosynovitis.
2. Bursitis.
3. Dupuytren's contractures.
4. Myositis.
5. Fibrositis.

The above classification is probably self-explanatory save for the divisions made under rheumatoid arthritis. Cases classified as typical rheumatoid arthritis seem to require no further comment. However, the cases included under atypical rheumatoid arthritis do. This group includes cases that do not exhibit the characteristic history, habitus and physical conditions observed in the typical cases of rheumatoid arthritis. The onset is usually sudden, without preceding prodromal symptoms, often following an acute infection or occurring in an individual with some obvious focus of infection. Such patients rarely complain of paresthesias, neurologic symptoms or increased vasomotor activity. The joint involvement is asymmetrical and large joints are more commonly affected. The arthritis is frequently polyarticular and migratory. The monoarticular form is encountered. Such patients may recover completely even though the supposed causative focus of infection is not removed. These remissions or periods of complete recovery may last months or years but are almost always followed by a relapse. This type of rheumatoid arthritis may be characterized by a number of remissions and relapses before going into the chronic progressive phase.

The fact that the remissions frequently occur spontaneously has caused many workers to draw erroneous conclusions concerning the specific cause and cure of this, the atypical form of rheumatoid arthritis. Such cases are not infrequently labeled the "focal infectious type of arthritis" or "nonspecific infectious arthritis" (because the causative agent has never been isolated). If, in such cases, one will allow for the passage of time before making an absolute diagnosis, the true nature of the type of arthritis present will usually become all too apparent.

DIAGNOSIS

Much that one reads pertaining to the various arthritides is confusing and contradictory. As previously stated, there exists no uniformly adopted nomenclature. The etiology of the chronic arthritides remains undetermined. Most of the recently advocated forms of therapy prove to have little merit when their administration is rigidly controlled. [10–13] This disconcerting state of affairs and the unrelentingly progressive course of the malignant type of rheumatoid arthritis constitute some of the reasons why many busy practitioners approach each new arthritic patient with a feeling of despair and complete absence of enthusiasm. Such an outlook is not very inspiring to the prospective patient and is not conducive to good therapy. This abject attitude is not fully justified. Our knowledge of the various arthritides is not so chaotic as it may appear. This is particularly true of diagnosis.

The diagnosis of disease of joints is in most cases relatively easy. As with other diseases, a correct diagnosis is based primarily upon a detailed medical history and complete physical examination. All too frequently the busy physician accepts the patient's diagnosis of rheumatism or arthritis and proceeds with the more commonly employed diagnostic and therapeutic procedures. Such a method of attack may be costly and may greatly inconvenience the patient, especially so when a thorough eradication of all questionable foci is undertaken. Exhaustive diagnostic and therapeutic programs are often instituted when a detailed history and physical examination with or without a few well-chosen laboratory tests would have given the correct diag-

nosis and made it clear that the therapy indicated was a simple, straightforward procedure known for decades. It is not good medical practice to resort to surgical removal of the various suspected foci of infection when full doses of colchicine would completely relieve the gouty arthritis within forty-eight or seventy-two hours. This also applies to many cases of gonorrheal arthritis, degenerative joint disease and various other arthritides. Experience has taught us that as complete a knowledge as possible of the well-established clinical facts pertaining to joint disease is of much greater diagnostic aid than all the more recently developed tests.[14-17] Thus it would appear wisest to devote the rest of this paper to a discussion of the diagnosis of joint diseases, even at the risk of being accused of being too elementary. Such a mistake seems justified when one appreciates that many ill-founded etiologic and therapeutic theories are due in part to incorrect diagnosis and an inadequate knowledge of the life course of the various arthritides.

No one of the laboratory tests employed is absolutely diagnostic. Finding an elevated fasting serum uric acid in a patient suffering from acute arthritis probably indicates the existence of gouty arthritis. However, one must remember that other diseases cause similar elevations of the blood uric acid and that the gouty patient may suffer from some other type of arthritis. Most other blood chemical tests are usually of little aid. The corrected sedimentation rate indicates the activity of the arthritis and not the type of arthritis present. It may be elevated in the non-infectious types. Serological tests such as the Wassermann, the gonococcal complement-fixation and undulant fever agglutination tests are of help only when considered in conjunction with the clinical facts. The various hemolytic streptococcus immunological tests (agglutinins, antistreptolysin, precipitins and so forth) are not diagnostic tests. Roentgenograms may be extremely helpful, particularly when correlated with the clinical findings, but here, too, there are many exceptions. Roentgenograms taken early in cases of acute infectious arthritis are usually negative and never diagnostic. A few weeks later they may be more helpful. The alterations detected by roentgenograms in the chronic arthritides may at times simulate each other. All too frequently the roentgenologist's interpretation is accepted as the final word, despite the history and the other findings. Considerable diagnostic help is obtained from cytological, bacteriological and chemical examinations of aspirated synovial fluid. Such findings should never be relied upon solely.

In order to cover concisely and yet as completely as possible the diagnosis of the various joint diseases, they will be taken up in the order presented in the classification previously given.

Traumatic Arthritis

As previously mentioned, only acute trauma is included under the term "traumatic arthritis." This type of joint disease as a rule is not difficult to diagnose. The history and physical findings usually suffice. One must be aware, however, that trauma to a joint may mark the onset of acute arthritis due to a specific organism. It may precipitate an attack of acute gouty arthritis, or it may be the factor responsible for the localization of rheumatoid arthritis. In those cases where the clinical findings lead one to suspect some such complicating factor, aspiration of the joint is most helpful. If the total cell count and percentage of polymorphonuclear leukocytes are not increased, the suspected complications can be dismissed.

Infectious Arthritis

Such arthritides are the direct result of invasion of the articular structures by a specific organism. These organisms reach the joints via the blood stream; therefore, with the exception of tuberculosis, in a large percentage of cases invasion of the blood stream will be accompanied by a chill, chilly sensations and a rise in temperature. There may or may not be the accompanying findings which characterize a bacteremia or a septicemia. The onset of the arthritis is acute. It is frequently polyarticular and migratory the first few days, finally settling in one or more joints, usually large ones, although no joint is exempt. The joint involvement is rarely symmetrical. This type of onset is seldom encountered in any other type of acute arthritis. Suspicion having been directed to a diagnosis of acute infectious arthritis, one must next determine the type if possible. Gonorrheal arthritis is first suspected as it is commoner than the others, particularly in the adult. A reliable history helps. The demonstration of the organisms in aspirated joint fluid allows for a diagnosis of proved gonorrheal arthritis. Recovery of gonococci from a genitourinary focus suggests gonorrheal arthritis. Cultural methods are superior to relying on demonstration of the organisms by smear. The gonococcal complement-fixation test is very helpful, but not absolutely diagnostic. The existence of the other types of specific infectious arthritis may be suggested by the history. Bacteriological tests should be relied upon whenever possible. This type of arthritis is frequently extremely painful. The cardinal signs of inflammation are usually present. Roentgenograms rarely show changes until the third week of the disease. If organisms are present, the syno-

vial fluid may become purulent. If not arrested this type of arthritis causes destruction and crippling. With the advent of sulfanilamide and other allied compounds, such end results should be encountered less frequently in the future provided the diagnosis is made early and the treatment administered properly.[18-20]

The articular lesions of congenital and acquired syphilis should not be overlooked. They belong in the specific infectious arthritis group. The articular manifestations of congenital syphilis are known as Clutton's joints or tenosynovitis syphilitica. Being painless they are frequently overlooked. They are commonly misdiagnosed as tuberculous arthritis, particularly so when monoarticular in type. Symmetrical painless effusions in a child should always lead one to suspect Clutton's joints. Although usually symmetrical, the monoarticular form is seen. Such articular manifestations are rarely encountered in the adult. The knee joints are most frequently affected, but no joint is exempt. The only discomfort experienced by the patient is stiffness on extremes of flexion and extension because of the joint effusion. In the presence of such joint signs, one should look for the other stigmas of congenital syphilis. The recognition of this type of joint disease is most important because such lesions clear completely, even though specific therapy is not administered. The articular manifestations of secondary syphilis rarely offer diagnostic difficulties save when we fail to think of them.

The rarer types of specific infectious arthritis such as those encountered in chronic meningococcal septicemia, undulant fever, the various dysenteries, Haverhill fever, lymphopathia venereum, subacute bacterial endocarditis, Reiter's disease, scarlet fever and the exanthemas should be considered in the patient presenting an unusual or atypical type of arthritis.

Gouty Arthritis

This type of arthritis is encountered as frequently as ever, despite statements to the contrary made during the last decade or two. Recent studies have shown that the incidence of gout in any community is directly related to the knowledge of the disease. As the latter increases, so does the incidence of gout.[21] If one is to demand the presence of tophi, characteristic roentgenographic changes and hyperuricemia before making the diagnosis of gout, many cases of presumptive gouty arthritis will go for years undiagnosed or mislabeled. Increasing suspicion of its existence plus a better knowledge of the disease has resulted in a marked increase in the number of cases so diagnosed each year in this clinic.

As in other types of joint disease, so too in gouty arthritis an accurate history is most important. It alone will enable one to suspect the correct diagnosis in the majority of the cases. Certainly a suspicious history should always call for a therapeutic trial with full doses of colchicine.[21] This therapeutic test can be and always should be carried out even if uric acid determinations are not possible. A history of recurrent attacks of arthritis with absolutely complete freedom of joint symptoms between them should always lead one to suspect gouty arthritis. Gouty arthritis is rarely chronic from the onset. Polyarticular involvement occurs in about 5 per cent of cases. The younger the individual, the more likely the involvement is to be polyarticular of the simultaneous or migratory type. This type rarely involves the large toe, and the attacks are of weeks' duration rather than the usual seven to ten days. The fever is more marked and may last weeks. This type is rarely afebrile. It signifies severe gout and crippling ensues at a much earlier age. It is frequently misdiagnosed as rheumatic fever.

Gout is an inherited disease; therefore a family history of gout is frequently obtained. The average age of onset has been recorded as forty years,[22, 23] although it may begin at a much earlier age.[21] There may or may not be a history of a precipitating event. Such factors include physical trauma, physiologic trauma, gastronomic sprees and worry.[21, 24] Operative procedures have been known to induce attacks. One authority[24] states that gout should be suspected in all cases of acute postoperative arthritis, particularly in men. The common prodromal symptoms are nausea, indigestion, melancholia, polyuria, nocturia, stiffness, aching and so forth. More attacks occur between April and June than at any other time of the year. The interval between the first and second attacks is variable; it may be months or years, but the average is eighteen months. It usually becomes less with increasing age. The average duration of an attack is thirteen days. It may be as short as twenty-four hours or last for weeks.

If one suspects gout, a diligent search for tophi should be made. They are most commonly found in the helix of the ear. They are white, cream-colored or yellow, varying in size from that of a pinhead to that of a pea. Except in severe gout they rarely appear until some other symptoms of the disease have been present for ten years or more. They are pathognomonic of gout but should never be considered as such until monosodium urate crystals have been demonstrated or a positive murexid test

has been obtained. They are also found in the cartilages of the nose, along the tendons of the fingers, hands, toes and feet, the patellar tendons and in the bursas of the patella, olecranon and Achilles tendon. They should not be confused with the subcutaneous nodules of rheumatic fever and rheumatoid arthritis. When the overlying skin breaks down, a mixture of chalklike material is extruded.

Although gout commonly involves the great toe, it does so in only 50 per cent of cases in the initial attack. This is true whether the attack is monoarticular or polyarticular. The spine, sacroiliac joints, shoulders and hips are rarely involved. Joint effusions do occur.

The history, although very suggestive, is of limited diagnostic aid when dealing with a patient suffering from his first attack of gouty arthritis. In most cases the onset is characterized by the instantaneous appearance of severe pain. This may come at a time when the patient has considered himself well. It is most important for the physician to realize that, as stated above, gout affects the big toe in only half the cases in the initial attack. Furthermore, no joint is exempt. The rapid appearance of articular swelling is much more characteristic of acute gouty arthritis than is the sudden onset of pain. Swelling of the foot may be so marked within an hour of the onset of acute gouty arthritis involving the first metatarsophalangeal joint as to necessitate cutting off the shoe.

In gouty arthritis the swelling extends farther beyond the joint margins than is observed in any other type of arthritis. Acute gouty arthritis more nearly resembles septic inflammation or extensive cellulitis. There may be associated lymphangitis. The overlying skin is red, tense and shiny. The superficial veins may be markedly distended. The tenderness is exquisite; as it subsides, pitting edema is demonstrable. With disappearance of the joint swelling, desquamation of the cuticle and itching follow. The latter finding is almost diagnostic of gouty arthritis. The pain may be extremely severe, often described as crushing, worse during the night and letting up in the early morning. These physical findings coupled with the history of sudden onset are of great diagnostic value.

Gouty arthritis having been suspected, confirmation of the diagnosis is rarely difficult. The dramatic response to full doses of colchicine is rarely observed in other types of arthritis. Recourse to laboratory tests in the case of the patient with a gouty arthritis reveals a mild to moderate leukocytosis, an increase in mononuclear leukocytes, a normal or increased sedimentation rate and a hyperuricemia. An elevation of the serum uric acid is nearly always present in untreated presumptive or tophaceous gout.[21] The determination is of most value when done on a fasting blood sample.[25–27] One can use either the Folin[28] or the Benedict[29] method. With either method one rarely obtains a serum uric acid value of less than 6 mg. per cent in the gouty patient. Exceptions to this rule are rarely encountered in gouty patients.[25–27] Determination of uric acid excretion is of no diagnostic aid. Evidences of mild renal impairment are frequently encountered in gouty patients.[22, 30, 31] Many of them die of uremia because of a complicating chronic nephritis.[31] "Chronic arthritis associated with distinct renal impairment should always suggest gout until proved otherwise."[22] The same might be said of the arthritic patient with a history of having passed gravel or renal calculi.

The roentgen-ray findings suggestive of gouty arthritis are punched-out areas, usually 5 mm. or more in diameter, most commonly located in the subchondral bone of the base or head of the phalanges of the hands and feet. Such changes may be late in appearing. In Hench's[22] series, 19 cases with tophi and hyperuricemia had had their disease twenty-eight years or longer and yet no roentgenographic changes were present. Marginal hypertrophy of the bones involved is a frequent finding. The punched-out areas should not be confused with those seen in hypertrophic and rheumatoid arthritis. In the latter, generalized decalcification is usually present. Occasionally similar findings are encountered in syphilis, leprosy, yaws, tuberculosis and sarcoid. Without the clinical history the roentgenologist should not be expected to make the diagnosis. The clinician should never accept the roentgenologist's diagnosis unless the clinical facts are in accord with the diagnosis of gouty arthritis.

More detailed information concerning the gouty patient can be obtained by consulting the more recent publications.[22, 24, 26, 32] It is interesting that effective therapy is little different from that prescribed years ago, except that it would appear that rigid restriction of the purine intake is not justified or indicated. We never employ cinchophen or any of its compounds because of the risk of inducing acute yellow atrophy and the fact that the pill form of colchicine is equally if not more efficacious.

Neuroarthropathies

Neuroarthropathies are most commonly associated with tabes, syringomyelia, nerve injuries and leprosy, in the order mentioned. The onset being insidious and painless, the patient usually seeks medical aid because of joint enlargement. Occasionally the onset is sudden and painful. This

latter type progresses much more rapidly. Joint effusions are the rule, and may be hemorrhagic. Increased joint mobility is dependent on the size and duration of the effusion, the extent of the joint disorganization and the frequency with which it has been traumatized. In the advanced cases all types of deformities and dislocations are encountered. Flail joints are seen. An occasional patient complains of recurrent joint pain. The roentgenograms of the neuroarthropathies reveal destruction of the articular cartilage, an irregular joint line, bone resorption, bone formation, exostoses, loose-body formation and at times calcification of the ligaments and regional muscles. In tabes the weight-bearing joints and the spine are more commonly affected, whereas in syringomyelia the joints of the upper extremity are more frequently involved. Arthropathy may be the first sign of tabes. The other most constant presenting tabetic signs are Argyll-Robertson pupils and absent knee jerks. The diagnosis of neuroarthopathy should always be considered when pain, tenderness and increased heat are absent. It is established by recognizing the disease of which it is a part.

Constitutional Arthritis

The one constitutional disease in which arthritis is frequently encountered is hemophilia. The articular manifestations may be the result of a single intra-articular hemorrhage or of repeated intra-articular hemorrhages. The acute type may occur at rest, although it usually follows some degree of traumatization. The joint symptoms of pain and swelling vary with the extent of the hemorrhage and the rapidity with which the intra-articular pressure rises. In some cases such symptoms may be marked. Local heat and redness are rarely present. The overlying skin may be discolored. There may be an associated fever and leukocytosis. In the acute stage roentgenograms reveal joint distention and periarticular swelling without associated bone changes. The hemorrhagic effusion causes an irritative synovitis. The tissues tend to return to normal as the blood is absorbed. Following repeated hemorrhages the joints may fail to return to normal. In such cases the symptoms of stiffness, pain and swelling may persist for months. It may progress to a chronic arthritis with a resulting fibrous-tissue ankylosis. In the chronic arthritis of hemophilia, the roentgenograms reveal a characteristic irregular, spotty type of articular cartilage destruction, subperiosteal and subchondral cavities and cysts, marginal exostoses and dense, thickened subsynovial tissues (due to the large amounts of iron contained therein). Such roentgenographic changes should not be confused with those of degenerative joint disease or tuberculous or rheumatoid arthritis. The diagnosis depends on the history of a bleeding tendency and the onset of acute painful swelling of a joint following minor trauma occurring in a young man. When in doubt, aspiration of the joint with a small-gauge needle should be undertaken.

Anaphylactic Arthritis

The arthritis of serum sickness is the only type of arthritis which can be classified as anaphylactic or allergic in nature. The arthritis of serum sickness may appear one to twenty-one days following the administration of one of the therapeutic serums, even in small amounts (5 cc.). The onset is abrupt, with associated fever, itching, urticaria, adenopathy, splenomegaly and at times abdominal symptoms. A leukocytosis precedes the onset, a leukopenia supervenes. Eosinophilia may be present. Evidence of renal irritation is at times demonstrable. The arthritis may be primarily a severe arthralgia with little evidence of objective signs. At other times redness, increased heat and swelling of the joints may be marked. The arthritis is often migratory affecting chiefly the large joints. It usually disappears within two to seven days, but may last three or more weeks. It clears completely, leaving no residual signs. This type of arthritis should never offer any serious diagnostic difficulties.

Degenerative Joint Disease

This type of joint disease is commonly spoken of as hypertrophic or osteoarthritis. We[33, 34] prefer the term degenerative joint disease because it describes more accurately the pathologic changes encountered, and we discourage the use of the word "arthritis" when speaking of this disease because there is little or no evidence of inflammation. Experimental and pathological studies reveal that articular cartilage differs from most other body tissues in that it possesses a very limited ability to repair itself. It appears that this limitation is not a function of the age of articular cartilage, but is directly related to the fact that articular cartilage is a relatively avascular tissue in which the matrix greatly exceeds the cellular elements. Because of this limited ability of articular cartilage to repair itself, the wear-and-tear changes of daily life become accumulative with increasing age, and in consequence intra-articular changes indistinguishable from hypertrophic arthritis are demonstrable in the knee joints of all individuals over fifty years of age. That the production of this type of joint disease may be explained solely on this basis is suggested

by the fact that similar changes ensue if a single joint is subjected to unusual use or to an intra-articular derangement such as patellar displacement.[35] From clinical observations it is apparent that such changes can also be produced, or if present can be hastened, by increasing the load which the joint has to carry or by impairing its normal mechanics.[34] If such factors have been operative since early childhood, the intra-articular changes will be demonstrable at a much earlier age. In all probability the type of cartilage one inherits governs in part the early onset of such joint changes as well as the rapidity with which they progress.

The primary type should be readily diagnosed. It is much more frequently encountered than any other type of joint disease. The history of an insidious onset occurring after the fourth decade of life and persisting for any period of time practically precludes the existence of most types of arthritis except those that are chronic in nature. The absence of fever and other evidences of infection tends to rule out most of the chronic arthritides due to infectious agents. In most cases the diagnosis rests between degenerative joint disease and rheumatoid arthritis.

On the basis of symptomatology alone, one encounters a general and a local type. The disease rarely occurs in the monoarticular form except in cases where a single joint has been subjected to long-continued use or trauma, such as occurs in certain industrial workers. Many patients may complain of symptoms referable to one joint, yet roentgenological examination reveals the same or an even more severe grade of degenerative joint disease in the opposite joint. In most cases close examination gives evidence of involvement of articular structures other than those complained of. The joints most commonly involved are the terminal phalangeal joints, the knees, the lumbar spine, the first metatarsophalangeal joints, the sacroiliac joints, the lower portion of the cervical spine, the shoulders and the hips. The midphalangeal joints of the fingers and the metacarpophalangeal joints of the thumbs are less commonly affected. Although no joint is exempt, these patients rarely complain of symptoms referable to the elbows, wrists and ankles. The involvement is rarely as widespread as in rheumatoid arthritis.

The terminal phalangeal joint lesions are spoken of as Heberden's nodes. Although they are pathognomonic of the disease they are not present in every patient. They are commoner in women than in men. The symptomatology referable to these joints and their appearance varies greatly from patient to patient. In some they are never a cause of complaint; some seek medical treatment because of their unsightly appearance, others because the joints are sensitive and ache. Some patients desire medical treatment because they fear that such joint signs represent the first objective evidence of a beginning crippling arthritis. In those patients experiencing symptoms with the development of Heberden's nodes, the complaints are aching, tenderness on pressure, slight stiffness, numbness and tingling. Except for the occasional case there is little to demonstrate at the time of onset other than slight joint swelling. In the exceptional case, early in the disease, the terminal phalangeal joint may be red and bulbous, fluctuant and tender on pressure. Such signs usually subside in eight to twelve weeks, leaving the tell-tale evidence of the typical Heberden's node. Involvement of all fingers may be present from the onset. More commonly the joints of the index and fifth fingers are the first to be affected. Such joints may ultimately assume a gnarled, knotted appearance. They never become truly ankylosed. Rarely a small cyst surmounts the nodosities.

Patients with degenerative joint disease rarely complain of symptoms other than those referable to the joints. When they do, they are usually due to disease of some other system. Therefore, the prodromal and constitutional symptoms so frequently seen in rheumatoid arthritis such as weakness, easy fatigability, anorexia, weight loss, fever, tachycardia, vasomotor symptoms, paresthesia and muscular weakness are not encountered. The onset is insidious. In many patients, particularly the obese, the first complaints are pain and stiffness in the knees and back. In fact, the obese patient may develop symptoms at a much earlier age than does one of normal weight. The pain is invariably relieved with bed rest. Some patients complain of grating and creaking in one or more joints, with or without associated stiffness, aching or pain. The pain may be accentuated by many factors, particularly by exercise and by changes in the weather. Generalized stiffness is a common complaint. It is present on awakening or after sitting for a time, only to disappear after the patient has limbered up or walked a short distance. The most distressing symptoms are encountered in patients with marked deformities of the knees (genu valgum or genu varum deformities) and malum coxae senilis. The latter affliction is the most disabling and painful manifestation of degenerative joint disease. Any of the above-mentioned symptoms may fluctuate considerably. Some patients may experience complete relief for varying periods of time. The reasons for such fluctuations are

not always apparent. In some cases they are directly related to living in a warm climate. In other patients, although the symptoms are never severe, they continue to persist. In such cases they may be looked on as a nuisance rather than as a disability.

Patients with degenerative joint disease are as a rule well nourished or obese. They do not exhibit evidence of pallor, weight loss, atrophy of the skin and muscles, generalized adenopathy, increased vasomotor activity, pigmentation and subcutaneous nodules so frequently seen in patients with rheumatoid arthritis. The examination of the joints is negative except for restriction of motion demonstrable in malum coxae senilis and marginal proliferation of the terminal phalangeal joints, the knees, the first metatarsophalangeal joints and occasionally the midphalangeal joints.

These patients rarely have anemia or leukocytosis, and these conditions when present should be ascribed to some other cause. The sedimentation rate in occasional cases is elevated for some reason as yet unknown. The non-filament counts are normal. Agglutination tests against streptococci are negative. The uric acid is normal. Lowered basal metabolic rates are encountered no more frequently in this group than in other individuals of corresponding age. The fasting serum calcium, phosphorus and phosphatase determinations are normal.

A roentgenogram may be negative or show only slight changes; yet when the joint in question is opened, examination may reveal marked changes characteristic of so-called hypertrophic arthritis. Nevertheless the roentgenographic appearance of degenerative joint disease is quite distinctive from rheumatoid arthritis. Decalcification except as a manifestation of age is not present. The first changes noted are narrowing of the joint space, with sharpening of the articular margins. Subsequently, marginal proliferation and condensation of the subchondral bone ensue. Small cysts are sometimes observed near the articulating surface. Bone destruction and irregularity of the joint line are observed only in well-advanced Heberden's nodes. Soft tissue changes are rarely demonstrable. One should never let the diagnosis rest solely with the roentgenologist. The roentgenographic findings should be looked on as one piece of evidence to be considered along with the history, physical examination and other laboratory tests in arriving at a final diagnosis. One must always remember that advanced changes of degenerative joint disease will ensue rapidly in a joint previously affected by a gouty, specific infectious or rheumatoid type of arthritis as well as repeated trauma. This we term secondary degenerative joint disease.

Rheumatoid Arthritis

The classic case of typical rheumatoid arthritis is readily recognized. The disease respects neither age, sex, race nor social position, although it affects women more often than men, white people more often than Negroes and the poor more often than the rich. In addition to the articular involvement, which is usually symmetrical and more likely to affect small joints first, the patients complain of constitutional, vasomotor and neurologic symptoms. These associated symptoms precede those referable to the skeletal system, and in many cases persist throughout the course of the disease. Such symptoms include weakness, easy fatigability, anorexia, weight loss, increased vasomotor activity, symptoms of Raynaud's disease and numbness, tingling, burning and stinging of the fingers and toes. Localized muscle weakness may be marked, with or without associated muscle twitchings and tremors. The symptoms referable to the skeletal system are muscle stiffness, aching and pain, neuritic-like pain, generalized stiffness, and joint stiffness, aching, pain and swelling. Iritis and scleromalacia perforans are occasionally seen. The disease may be unrelentingly progressive from the onset but is more commonly characterized by remissions and relapses of varying degree and duration. In a small percentage of cases the remissions are complete and of years' duration; in the majority they are incomplete and short-lived, with recurrent symptoms and persisting, tell-tale evidence of previous fascial and joint involvement. Irrespective of the initial course of the disease, increasing evidence of progression occurs with the passing of time, leading in many cases to partial or complete incapacitation.

On physical examination such patients often show a characteristic pallor, evidence of weight loss, obvious symmetrical joint involvement of varying degrees, skin and muscle atrophy and usually generalized lymphadenopathy. Splenomegaly is encountered. Pigmentation when present is quite characteristic, consisting of a peculiar bronzing of the skin which is most marked over the face and extremities. Psoriasis occurs in 3 per cent of cases. Such cases are often termed psoriatic arthritis. To date there is little justification for considering these patients as suffering from a distinct disease entity. The subcutaneous nodules of rheumatoid arthritis probably constitute the most characteristic lesion of rheumatoid arthritis. They are present in about 20 per cent of cases.

They are most commonly found over the extensor surfaces, particularly of the elbow. When noted in this region they are situated 3 to 5 cm. distal to the elbow joint. They are also found along the tendons of the fingers and toes, in the olecranon bursas and over the patellas, scapulas, spinous processes, sacrum and scalp. They vary in size from scarcely palpable, seed-like particles to lesions several centimeters in diameter. They are frequently attached to underlying structures but the overlying skin is freely movable. They rarely cause pain. They usually persist for months and often for years. When in doubt the differentiation of rheumatoid nodules can usually be made by microscopic examination.

A low-grade fever is not uncommon. In the more fulminating cases, particularly in children (Still's disease), a spiking temperature of 103 to 105°F. may be maintained for weeks. A moderate tachycardia, usually persistent, is the rule even in those cases where fever is not a marked feature of the disease. A moderate anemia is frequently observed. More extreme grades of anemia may develop. There is usually no leukocytosis, or if present it is slight. In the cases characterized by a marked febrile response, a leukocytosis of 10,000 to 20,000 is frequently encountered. In children during the febrile period it may go as high as 40,000 or 50,000. In chronic cases a leukopenia may be present. There is usually an increase in the proportion of non-filamented cells. The sedimentation rate is almost always increased in rheumatoid arthritis, the increase usually being directly proportional to the severity of the disease. The streptococcal agglutination and precipitin tests are not of sufficient diagnostic aid to justify their being done routinely.

Early cases show no roentgenographic changes. Later the more typical manifestations are readily demonstrated. The most characteristic of these is generalized decalcification. Joint effusions are a prominent feature of this disease. Early periarticular soft-tissue swelling is the rule; it regresses if the disease persists. As progression occurs, narrowing of the joint spaces, cartilage destruction and cortical erosion are seen. Later fibrous or bony ankylosis may ensue. Subluxation and dislocation of the phalanges are common findings in long-standing cases.

The differences between the typical and atypical types of rheumatoid arthritis have been previously discussed.

Rheumatoid spondylitis is classified as a form of rheumatoid arthritis because peripheral joints are often involved preceding or following the first symptoms referable to the spine. The most striking difference between the generalized and spinal types is the sex incidence. In the latter the ratio of men to women may be as high as 20:1, whereas in the former the ratio is 2:1 or 3:1 in favor of women. In uncomplicated cases of spondylitis the articulations involved are the small joints of the vertebrae, the sacroiliac joints, the hips and the shoulders. By means of roentgenological examination it is found that the majority of cases show their first change in the sacroiliac joints. This is not surprising knowing that sciatica is one of the commonest symptoms in most cases of rheumatoid spondylitis. The onset of this disease may be sudden or insidious, more commonly the latter. Besides sciatica the patients complain of pain and stiffness of the spine and pain on deep breathing, coughing or sneezing. Girdle pains and pains down the extremities are encountered. Some degree of rigidity of the spine is almost always present. Exquisite tenderness over the spinous processes may be elicited. Spasm of the spinal muscles is a frequent finding. The chest expansion and vital capacity are reduced. Constitutional symptoms of varying degree are usually present. Fever and leukocytosis of the same grade seen in the typical cases of rheumatoid arthritis are observed. The sedimentation rate is invariably increased. As the disease progresses, pain may be less, but motions of the spine are more limited. The process may remain localized but usually spreads so as to involve the entire spine. Involvement of the shoulders and hips occurs frequently. In those cases where all mobility is lost the spine assumes the characteristic "poker-back" appearance. The roentgenograms of rheumatoid arthritis of the spine are quite different from those of degenerative joint disease of the spine. Early cases may show no changes or only slight alterations in the sacroiliac joints. In the more advanced cases there is present generalized osteoporosis, involvement of the small intervertebral articulations and calcification of the anterior and lateral ligaments of the spine in addition to fusion of the sacroiliac joints.

Rheumatic Fever

Rheumatic fever is usually readily diagnosed. Occasionally it may simulate rheumatoid arthritis. In such cases only the passage of time and subsequent developments will enable one to make the correct diagnosis. Rarely, an early case of acute specific infectious or polyarticular gouty arthritis may be difficult to differentiate from rheumatic fever.

Other Skeletal Diseases

Most of the previously mentioned skeletal diseases of unknown etiology are readily diagnosed.

Space does not permit their being discussed. The articular lesions of acute disseminated lupus erythematosus, periarteritis nodosa and other rare diseases are frequently mislabeled.

Endocrine Arthritis

Although the term "endocrine arthritis" is frequently used, no one has presented sufficient evidence to prove that such a disease entity or disease entities exist. It is our belief that the term "menopausal arthritis" means little more than the occurrence of degenerative joint disease or rheumatoid arthritis just prior to, during or following the menopause. The thyroid gland and other glands of internal secretion have been incriminated from time to time, but without sufficient data to prove that endocrine dysfunction plays a major role in the production of any one of the arthritides. During the menopause, many women will complain of various "algias." The exact significance of these is unknown. In many cases they may represent little more than the aches and pains encountered by most individuals from time to time, but during the sensitive state of the menopause they are accentuated. In some patients, such complaints are relieved when appropriate substitution therapy is administered.

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Space forbids discussion of many of the other interesting problems pertaining to diseases of joints. These will be found in some of the more recent publications.[3, 36, 37] The physician interested in a detailed review of the current English and American literature pertaining to the problems of rheumatism and arthritis should consult the reviews published each year in the *Annals of Internal Medicine.*

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CASE RECORDS OF THE MASSACHUSETTS GENERAL HOSPITAL

ANTEMORTEM AND POSTMORTEM RECORDS AS USED IN WEEKLY CLINICOPATHOLOGICAL EXERCISES

FOUNDED BY RICHARD C. CABOT, M.D.

TRACY B. MALLORY, M.D., *Editor*

CASE 25401

PRESENTATION OF CASE

A sixty-one-year-old American housewife was admitted complaining of pruritus and jaundice.

About three months before admission she noted the onset of generalized itching and burning of the skin. One week later jaundice appeared and gradually deepened up to the time of entry. After the development of jaundice she had consistently noticed clay-colored stools and very dark urine. With the pruritus a papular eruption developed over the legs and trunk; it was not pustular and not due to scratching. Since the appearance of the jaundice she had also been aware of a non-tender mass protruding in the epigastrium on standing. For two months she was occasionally nauseated but did not vomit. Her appetite failed but she had marked craving for fluids, especially fruit juices. She avoided fatty foods because they caused nausea. During the past month she had tired easily and occasionally experienced palpitation. She noticed dyspnea on exertion and had ankle edema, appearing in the late afternoon and subsiding during the night. There had been no orthopnea or pain. She had lost 20 pounds in weight after the onset of her illness. There was no past history suggestive of gall-bladder disease, and she had not had gastrointestinal complaints in previous years.

Physical examination showed a well-developed and nourished, jaundiced woman weighing 180 pounds. Examination of the heart was essentially negative. The blood pressure was 130 systolic, 64 diastolic. The lungs showed persistent fine rales at both bases, extending to the angles of the scapulas. The liver edge was palpated 3 cm. below the costal margin. A notch was palpated toward the midepigastrium, and there was a hard mass attached to the liver edge at this point. There was only slight abdominal tenderness, and no spasm. No signs of fluid could be elicited.

The temperature was 98.6°F., the pulse 70, and the respirations 18.

Examination of the urine showed the presence of bile, and the sediment contained 10 to 15 white cells per high-power field. The blood showed a red-cell count of 4,080,000, and a white-cell count of 10,000 with 77 per cent polymorphonuclears. The serum nonprotein nitrogen was 20 mg. per 100 cc., the chlorides 102 milliequiv., the carbon-dioxide combining power 56.4 vol. per cent, the protein 5.9 gm. per 100 cc., the van den Bergh, biphasic, 13 mg. bilirubin per 100 cc. and the cholesterol 379 mg. per 100 cc. A blood Hinton test was negative.

Barium enema x-ray studies were negative. A gastrointestinal series showed no esophageal varices. The stomach was long and pushed somewhat laterally by a large liver. There were no other abnormalities. Two plain films of the abdomen showed no evidence of opaque stones in the gall-bladder region. X-ray films of the chest showed a slightly high diaphragm. The lung fields were normal. The left ventricle was slightly prominent, although the heart was not enlarged. The aorta was tortuous, the aortic knob calcified.

On the third hospital day examination of the abdomen showed the right lobe of the liver to be non-tender and not smooth. There was a hard nodular mass, possibly more than one, at the liver edge in the right midclavicular line. The spleen was not palpable. No lymphadenopathy or breast nodules were noted. On the fifth hospital day a peritoneoscopy was done. The edge of the liver was smooth and sharp, and the liver was greenish-brown. Both lobes were seen and showed no evidence of either metastatic cancer or cirrhosis. In the region of the gall bladder there was a mass 6 or 7 cm. in diameter which was pearl-gray and very firm in consistence. There was no evidence of metastatic disease in the peritoneal cavity. On the twelfth hospital day it was noted that the blood prothrombin level had risen from 75 to 95 per cent under vitamin K and cholic acid therapy. On the eighteenth hospital day a laparotomy was done.

DIFFERENTIAL DIAGNOSIS

DR. WILLIAM B. BREED: In brief this case is that of a sixty-one-year-old woman with painless jaundice of three months' duration without any gastrointestinal symptoms except anorexia and distaste for food, which are explained by the presence of jaundice. The dyspnea on exertion and edema are not very significant at the moment unless we find something farther along to indicate that she did have heart disease; the story sounds as if they were secondary to anemia or malnutrition.

Just considering the history and physical examination, one has to determine first of all whether the jaundice was due to intrinsic liver disease or to obstruction of the common duct. If it was obstruction, was it due to gallstones or to cancer of the pancreas, of the ampulla or of the bile ducts of the gall bladder itself with pres-

sure on or invasion of the common duct? The fact that it was painless does not necessarily rule out a stone in the common duct, but it does suggest that such was not the case. Also, the presence of a mass in the region of the gall bladder brings up the question of Courvoisier's law, which, as I remember it, is as follows: "If the obstruction is due to a gallstone in the common duct, the gall bladder is not palpable; if it is due to cancer, the gall bladder is enlarged and often palpable." Assuming, then, that the mass in the right upper quadrant was the gall bladder, that leads us away from the common duct and toward some malignant neoplasm, either cancer of the ampulla, the pancreas or the gall bladder itself or, more remotely, a primary cancer of the liver with obstruction by invasion.

The blood showed a moderate anemia. I presume the Graham test was not done because it is of no value in the presence of marked jaundice.

"On the third hospital day examination of the abdomen showed the right lobe of the liver to be non-tender and not smooth." That is an ambiguous statement. I do not know what they mean by "not smooth." Was it really nodular? The examiner was apparently in doubt, and it also leaves me confused. "There was a hard nodular mass, possibly more than one." On direct examination one has to make up one's mind.

Following peritoneoscopy, it is stated: "The liver was greenish-brown." Is that normal, Dr. Mallory?

DR. TRACY B. MALLORY: A greenish-brown color indicates jaundice and also suggests that the jaundice is obstructive rather than intrahepatic. In all probability the color would be orange-yellow if the disease were intrahepatic.

DR. BREED: The reason I did not bring in the question of metastatic cancer of the liver is that I had already read the report following peritoneoscopy to the effect that there was no evidence of metastases in the liver. That is not conclusive of course, because mistakes are sometimes made by peritoneoscopy, but it is a fairly definite statement.

DR. MALLORY: Metastases may be within the substance of the liver and not present on the surface, so that even on abdominal exploration they can be missed, but it is unusual.

DR. BREED: So we cannot rule out a metastatic process; there is no evidence to point to it but some to point away from it. That is the best one can say.

"In the region of the gall bladder there was a mass 6 or 7 cm. in diameter which was pearl-gray and very firm in consistence." I have to ask another question. Could this appearance be a dilated gall bladder? Could the examiner be sure, with this instrument?

DR. MALLORY: He could push the end of the instrument against the gall bladder and get a sensation of whether it was firm or not. With experience one is able to make very reliable observations in such a manner, as the experienced gynecologist comes eventually to "feel" with his curet.

DR. BREED: I take it that 100 per cent prothrombin is normal. They found it to be 75 per cent and gave vitamin K with bile salts and raised it to approximately normal before operation. They then operated on her and found out what this was.

I do not know how we can locate the lesion. I think she had cancer. She might have had a primary cancer of the liver, although I believe cancer of the liver is ordinarily internal and does not present on the surface.

DR. MALLORY: I should question that statement, Dr. Breed.

DR. BREED: Of course if it were a primary tumor of the liver, it was not widespread enough to cause hepatic insufficiency; however it did cause jaundice. There is a mechanical element here somewhere, I am certain. As to just what was causing obstruction to the common duct, I am in the same predicament that the surgeon was when he operated — and I do not believe anyone could tell. The only thing one can do is to take a side and to assume it was due either to obstruction or to intrinsic liver disease. I shall take the obstructive side and, furthermore, say that the obstruction was due to cancer rather than to a gallstone. As to its primary site, I have no idea. I should say it probably was not caused by metastatic disease from cancer in the sigmoid or something of that sort.

A PHYSICIAN: How about the stools?

DR. BREED: They were clay-colored and not bloody.

A PHYSICIAN: The stomach was pushed somewhat laterally by the large liver. Does that mean anything?

DR. BREED: This may have been due to the mass that we are talking about rather than to the liver itself. I am not sure that the x-ray men could say that the shift was caused by the liver. It may even have been due to a mass in the liver itself.

A PHYSICIAN: The history says that she had a marked craving for fluids. The urine examination says nothing about sugar.

DR. BREED: I should agree with you that that is worth looking into for a question of involvement of the pancreas.

DR. MALLORY: While in the hospital there were several reports on the stools — one was gray-brown, three yellow and four white.

A PHYSICIAN: It could not have been barium?

DR. MALLORY: The fifth stool was said to have had barium in it. Nine urines were negative for sugar, three showed a green test.

DR. BREED: That means nothing. Was the blood sugar determined?

DR. MALLORY: No. All urines contained from + to ++++ bile.

DR. BREED: Is primary cancer of the liver always a hepatoma?

DR. MALLORY: No; there are two kinds. You can have a hepatoma, a tumor of liver cells, or a primary carcinoma of the intrahepatic bile ducts, which is histologically just ordinary adenocarcinoma. I shall add one other point: in this geographic area primary hepatoma never occurs in a patient who does not have cirrhosis of the liver. That is not true in China, where it occurs in people who are infected with flukes, or in Java, where it is the commonest kind of cancer, without any reason that we know of. Intrahepatic bile-duct cancer can occur without cirrhosis.

DR. BREED: If she had brown stools and a serum bilirubin no higher than 13 mg. per 100 cc., this suggests that there might not have been complete obstruction; and the more you think about it perhaps the more the question of primary carcinoma of the bile ducts comes to the fore as the best bet, so to speak. Such a lesion would certainly be painless. It would fit with the peritoneoscopic picture. I shall take a sporting chance and say they found a primary cancer of the bile ducts, with cancer of the gall bladder, the ampulla and the pancreas as the second, third and fourth choices, respectively.

CLINICAL DIAGNOSIS

Carcinoma of gall bladder.

DR. BREED'S DIAGNOSIS

Primary cancer of bile ducts.

ANATOMICAL DIAGNOSES

Cholecystitis, chronic.
Cholelithiasis.
Obstruction of common duct by external pressure.
Biliary cirrhosis of the liver.
Central necrosis of the liver.
Bile necrosis.
Arteriosclerosis.

PATHOLOGICAL DISCUSSION

DR. MALLORY: The peritoneoscope is the latest important addition to our diagnostic armamentarium and is still too new to have been thoroughly evaluated. Its potential value is certainly great but like any other diagnostic procedure it has its limitations. Only occasionally, and then with the aid of biopsies taken through it, can it alone establish a diagnosis. In the usual case it simply gives us more items of information which must be fitted into the general pattern to establish a diagnosis. The technic of using these instruments can be readily acquired, but the eye behind the instrument is not so quickly trained. Years of experience and constant check with the operating room and the postmortem table will evidently be necessary. The number of those who actually use the peritoneoscope will probably remain small, but every clinician should gain some degree of experience in interpreting the results of peritoneoscopy. He must learn what types of observation can accurately be made by this method and what observations may legitimately be questioned if they do not fit into the general clinical picture.

This patient was explored a few days after peritoneoscopy and came to postmortem examination a week after that, so we have a double check on the peritoneoscopic observations. Dr. Edward B. Benedict noted, as has been reported, that the gall bladder had markedly thickened walls of very hard consistence and also that the liver was greenish-brown and appeared to be large. At operation and at autopsy as well the discoloration was confirmed but the organ was found not to be enlarged but to be prolapsed downward. It seems fair to conclude, therefore, that peritoneoscopic examination does not give a reliable indication as to the size of the liver. Dr. Benedict believed that the appearance of the gall bladder strongly suggested carcinoma and made that diagnosis. At the time of his examination he took a biopsy in which, however, we could find only chronic inflammation and no evidence of neoplasm. At exploration the surgeon likewise was of the opinion that the gall bladder was neoplastic and that the condition was essentially inoperable. Autopsy, however, proved both of them to have been mistaken in regard to the diagnosis. The gall-bladder wall was greatly thickened by fibrous inflammatory tissue and the consistence was rock hard, but the latter proved to be due to the presence of two large stones within the lumen of the organ. No bile or secretion was present, and therefore there had been no sensation of fluctuation. A third stone was found in the ampulla and first portion of the cystic duct, and pressure from this and from the surrounding inflammatory tissue had

evidently partially obstructed the common bile duct from without.

Despite the absence of cancer it is very doubtful if a cholecystectomy would have prolonged this patient's life. Examination of the liver showed very extensive hepatic degeneration and considerable biliary cirrhosis. The kidneys showed a marked grade of bile nephrosis, and it seems very improbable that she could have withstood an extensive operation. Two months or even one month earlier it would, of course, have been a different story.

CASE 25402

Presentation of Case

A fifty-five-year-old musician was admitted to the hospital complaining of frequent attacks of chest pain.

About ten weeks before entry the patient had been given a colonic irrigation for constipation. During the procedure he developed, for the first time, attacks of anterior chest pain, which extended from axilla to axilla and which seemed to be centered in the right axilla. Since the onset, these attacks had recurred approximately on alternate days, with the pain characteristically beginning an hour after supper and lasting from thirty to sixty minutes unless stopped by the ingestion of nitroglycerin pills, which were usually effective. The larger the meal, the sooner the discomfort began. The pains were not related to exertion or fatigue and did not radiate down the arm. There was no associated palpitation or breathlessness. His last attack occurred the evening before admission. He had taken digitalis daily, but the amounts and length of time of dosage were not stated.

Nineteen years before admission the patient had had an alleged attack of rheumatic fever. There were no subsequent attacks, but since then he had had sore throats. Eleven years before entry his tonsils were treated with an electric needle "without any particular improvement," and two years later he had a tonsillectomy. The patient had been worrying about his heart because of palpitation. Four years before admission, because of throbbing headaches and hypertension, he had a 600-cc. phlebotomy performed, without complication.

The family and marital histories were not contributory.

The physical examination revealed a slightly obese man who did not appear ill. The vessels of the fundi were slightly tortuous. The left border of dullness of the heart was percussed 11 cm. beyond the midsternal line, with the right border at the sternum. The supracardiac dullness measured 5 cm. The sounds were of poor quality and extrasystoles were heard every three or four beats. There was a questionable gallop rhythm, and a soft systolic murmur at the apex. The blood pressure was 250 systolic, 125 diastolic. The lungs were clear. The remainder of the examination was essentially negative. The temperature, pulse and respirations were normal.

Examination of the blood revealed a red-cell count of 5,090,000 with 100 per cent hemoglobin (Sahli), and a white-cell count of 10,000 with 67 per cent polymorphonuclears.

The temperature, pulse and respirations remained essentially normal throughout his hospital stay. He was comfortable and without precordial pain until the evening of the fifth hospital day when he developed substernal pain, which lasted over ninety minutes and which was only slightly relieved by four tablets of nitroglycerin. With the onset of the pain, he became gray but not cyanotic; the heart sounds were of poor quality, but the rhythm was regular at 72 beats per minute. The blood pressure was 150 systolic, 100 diastolic. He was mentally clear. A few hours later the blood pressure rose to 190 systolic, 110 diastolic, and although he showed no signs of shock and was not cyanotic, he quickly failed and died in the early morning of the sixth hospital day, about eight hours after the onset of the attack.

Differential Diagnosis

Dr. Howard B. Sprague: Of course the prominent pieces of evidence in this case are the story of known hypertension for at least four years before the final episode and the finding of a blood-pressure recording of 250 systolic, 125 diastolic. The question is, What else did he have besides high blood pressure? His attacks of pain started ten weeks before his death, and the first one came in relation to a colonic irrigation. That is rather interesting. We know that stimulation by distention of the upper intestinal tract can precipitate attacks of angina pectoris, but this story is certainly not the common way in which the intestinal tract is distended as a precipitant. It is furthermore rather atypical that subsequent attacks were not related to exertion but came regularly after supper on alternate days, with the discomfort lasting a half hour to an hour unless he took nitroglycerin, which usually was effective. One usually thinks that episodes of such long duration are not ordinary attacks of angina pectoris, but I think that the discomfort which comes in patients with coronary disease after meals may have a much longer duration, perhaps go-

ing and coming somewhat over this period of time and still be considered a coronary symptom. Nitrites do have an effect on relaxation of the gastrointestinal tract, specifically the pyloric sphincter, and there may be some relation here between referred discomfort from the stomach and the coronary type of pain. The nitroglycerin might have an effect on both of them to some degree. One thinks, of course, because of this particular sort of relation to meals, about the question whether there was something else there, such as gall-bladder disease, which complicated the situation.

He had in his past history, so far as the cardiovascular system is concerned, a story of a questionable attack of rheumatic fever and on physical examination had a systolic murmur at the apex. Perhaps this is unimportant, although it is possible we may find some slight, healed rheumatic involvement of the mitral valve. The physical findings are consistent with hypertension, in that the vessels of the fundi were slightly tortuous. The poor quality of the heart sounds, the questionable gallop rhythm and terminal cardiac failure, with normal rhythm except for the premature beats, were apparently due not to congestive failure but to anginal failure. The final episode consisted of substernal pain, lasting for an hour and a half and only slightly relieved by repeated nitroglycerin. There seems to be little question but that he had an occlusive episode — he became gray at the time of the severe pain and there was a drop in his blood pressure to 150 systolic, 100 diastolic, with a later recovery to 190 systolic, 110 diastolic. Is that the final blood-pressure recording?

Dr. Benjamin Castleman: Yes.

Dr. Sprague: Unless there is something else in this picture that I cannot see, we seem to be dealing with hypertensive coronary disease with a final attack of coronary occlusion. Perhaps we might even speculate further about this angina pectoris which he had with substernal pressure. It seems to have centered in the right axilla. As it was related to the change in position of the diaphragm and was especially brought on by colonic irrigation, it makes me think that the chief lesion might be in the right coronary artery rather than the left. There is not, in my experience, a very good correlation between radiation of pain to the right and involvement of the right coronary artery and usually, of course, both coronaries are involved, but some evidence points in this direction.

There is one other point in relation to the character and position of pain brought on by colonic irrigation: I have seen several patients with acute attacks of colonic diverticulitis whose attacks simulated coronary thrombosis with severe epigastric pain, vomiting and collapse. I think we have nothing to suggest that here. I shall say then that he had hypertensive coronary heart disease, angina pectoris and terminal coronary occlusion. The latter was not of long enough duration to have caused obvious cardiac infarction — although he lived for eight hours — and possibly involved chiefly the right coronary artery.

Dr. Paul D. White: Dr. Sprague referred to the strong possibility that trouble with the digestive tract might have caused the symptoms at the beginning, after colonic irrigation. I should favor that too. There was no relation between the pain and exertion, but the pain did come after the first colonic distention and then with meals after that. Whether there was gall-bladder disease or simply an irritability of the gastrointestinal tract with cardiospasm or distention of the colon, I do not know; but I should favor the diagnosis of indigestion. Terminally we must also think of a dissecting aortic aneurysm and pulmonary embolism, because they crop up sometimes when we least expect them. Although I should agree that coronary thrombosis is the most likely diagnosis, I should put second a dissecting aortic aneurysm, and third, pulmonary embolism.

Clinical Diagnosis

Hypertensive coronary heart disease, with angina pectoris, coronary occlusion and cardiac failure.

Dr. Sprague's Diagnoses

Hypertensive coronary heart disease.

Angina pectoris.

Terminal coronary thrombosis (? right coronary artery).

Anatomical Diagnoses

Coronary thrombosis, old, right main and left circumflex; recent, first branch of left descending.

Cardiac infarction, old, left ventricle.

Pulmonary edema, massive, bilateral.

Pleuritis, chronic fibrous, right.

Hydrothorax, slight, bilateral.

Nephritis, chronic vascular.

Polypi of colon.

Cardiac hypertrophy and dilatation, hypertensive type.

Slight rheumatic heart disease, aortic valve.

Atherosclerosis, marked, coronary and aortic.

Prostatic hyperplasia, slight.

Pathological Discussion

Dr. Castleman: This man did have a large hypertensive heart, weighing 700 gm. We found no evidence of fresh infarction, but at the apex there was a healed scar measuring a little over 1 cm. in diameter, evidence of a previous infarction. Examination of the coronaries showed that the right and left were both markedly involved with arteriosclerosis. They were thickened and calcified. The right coronary, about 6 cm. from its origin, was completely occluded by an old organized thrombus, the lumen on either side of which was very narrow, almost pinpoint. The circumflex branch of the left, a few centimeters from its origin, was also occluded by a similar old and organized thrombus. A small branch of the main descending branch of the left contained a fresh thrombus.

A section of the latter shows a narrow media, apparently compressed by thick fibrous intimal proliferation. Within the intima is an area of hemorrhage, all the way around the vessel. In one spot is a rupture of the intima with hemorrhage into the lumen, which apparently preceded the thrombosis. This fits in with the Paterson* theory that rupture of an internal hemorrhage is the most frequent precipitating cause of coronary thrombosis. We cut our section through an area that shows it very well. Most of the material within the lumen is a hemorrhagic thrombus with no atheromatous necrotic deposits. Another interesting feature of the slide is that the media and part of the adventitia are diffusely infiltrated with acute and chronic inflammatory cells — eosinophils, plasma cells and lymphocytes. I am not sure that pure arteriosclerosis can cause such an extensive irritation to produce that amount of infiltration secondarily. It is possible that this could be a rheumatic arteritis or something like that, which may have predisposed this vessel to thrombosis.

Dr. White: A periarteritis?

Dr. Castleman: No; there was no periarteritis.

The mitral valve was slightly thickened and showed a very slight but definite amount of rheumatic endocarditis. The aorta showed a severe degree of arteriosclerosis. The kidneys weighed 200 gm. and showed a moderate degree of vascular nephritis. The lungs were markedly congested and edematous and contained a few foci of bronchopneumonia.

Dr. White: Was there any gall-bladder disease?

Dr. Castleman: No.

A Physician: Can the pain which was related to meals and not due to exertion or fatigue be explained?

Dr. Sprague: In certain cases of angina pectoris I think it is striking that there is a specific excitant for the individual which is much more impressive than are some others. I do not know how much effort he was put to in his ordinary life. Perhaps more physical exertion might have precipitated anginal attacks. It is not known what instrument he played: some require more exertion than others.

*Paterson, J. C.: Vascularization and hemorrhage of the intima of arteriosclerotic coronary arteries. Arch. Path. 22:313-324, 1936.

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SALVATION ARMY APPEAL

In response to the 1939–40 Greater Boston Annual Maintenance Appeal of the Salvation Army there will come to the aid of that organization, as heretofore, big-hearted men and women of the business world, as well as many folk who are charitably inclined. With a determination in the minds and hearts of the workers — the Salvation Army officials — and the campaign organization that the "Door of Service" must be kept open, the appeal will get underway on October 9, with a luncheon at the Boston Chamber of Commerce.

Its goal is set at $195,000 and includes $25,000 which will be raised by sponsoring groups in corps towns of Cambridge, Chelsea, Everett, Malden, Medford and Somerville. The arrangement is made so that campaigns in these cities will run simultaneously with the Boston activities, thus giving added impetus to the drives. In Boston proper the amount to be raised is increased over last year's goal by $15,000. This is the approximate amount to be set aside each year for the operation and maintenance of the Salvation Army's new unit, — The South End Boys Club, — which was a gift of the Charles Hayden Foundation. The building operation is in progress at Washington and East Canton streets, on a site adjoining the New England headquarters and the Palace Hotel of the Salvation Army. When the building is completed, the block fronting on Washington Street and backing on Mystic Street, from East Brookline Street to East Canton Street, will represent one of the largest character-building centers in this part of the world.

The quota set represents money that is needed to keep in active state the many units and avenues of service that are well known to Greater Boston folk. It means keeping the "Door of Service" open for friendless men and women and for lonesome or backward boys and girls. In speaking of the work of the Salvation Army, Colonel Edmund C. Hoffman, chief executive in New England, said: "If you are in trouble it makes no difference who you are or from where you come. The Salvation Army gives a helping hand regardless of race, color or religion." This charitable organization deserves the support of the medical profession!

SMALLPOX INCREASES

Massachusetts has reason to be proud of its splendid record of almost universal vaccination against smallpox. This fact is emphasized by a recent report of the United States Public Health Service* on the prevalence of smallpox in this country. In 1934 the disease had dropped to a low level of only slightly above 5000 cases. Since then there has been a rapid increase, reaching 11,673 cases in 1937 and almost 15,000 in 1938.

At this level the United States is leading all the nations in the world except India in the incidence of the disease. "In 1936 [last available world-

*Where and why smallpox is occurring in the United States. Pub. Health Rep. 54:1091-1093, 1939.

wide figures], according to reports of the Health Organization of the League of Nations, England and Wales, with a population of 40,839,000, reported only 12 cases; France, with 41,906,000 population, reported 273 cases; and Germany, with a population of 67,346,000, reported no cases."

Massachusetts has not contributed a single case toward this high smallpox record. The last case reported in the State occurred early in 1932. This record would not have been possible without the continued efforts of physicians and health workers during the last hundred years. In 1809, less than ten years after vaccination was introduced into the State, a law was passed making it mandatory that each community appoint a committee to have charge of vaccination. At that time the virus was propagated by the arm-to-arm method, and unless someone had the responsibility of the continuous transference of cowpox, the virus was not available for an emergency. For a time smallpox almost disappeared, and in 1837 the law was repealed. A gradual increase in unvaccinated individuals resulted, and by 1853 smallpox had become so prevalent that the legislature passed our present compulsory vaccination law.

At first the vaccination law was very poorly enforced, and by 1871 a large unvaccinated population had again accumulated and a sharp outbreak, centered around Boston, occurred. Better enforcement of the law ensued, and the disease remained at low levels for several years. It took another outbreak in 1901 to stimulate universal observation of the law, and since that time smallpox has never again obtained a foothold in the State. In spite of this splendid record we have to defend our vaccination law against repeal at every session of the legislature.

Massachusetts is not the only state which has not contributed to the high smallpox record. A score of states along the Atlantic seaboard in which the practice of vaccination is popular have had very few cases. Five of them have not had a single case during the last five years.

The high national record is due largely to the prevalence of the disease in the states of the Great Plains and the Pacific Northwest. "In some of the states, notably North and South Dakota, Utah, Wyoming, Oregon and Idaho, the case rate is among the highest reported anywhere in the world." This is the area in which vaccination is most neglected. Of the thirteen states that have compulsory vaccination laws and of the fourteen that permit local option only two and four, respectively, are west of the Mississippi.

It cannot be expected that Massachusetts will continue indefinitely to report no cases of smallpox. Eventually someone in the incubation period of the disease will come into the State and become ill here, or a missed case of the disease will cross the border and infect susceptible individuals. We can feel secure, however, in the knowledge that only a few cases can occur because practically everyone in the State has been vaccinated.

MASSACHUSETTS MEDICAL SOCIETY

SECTION OF OBSTETRICS AND GYNECOLOGY*

RAYMOND S. TITUS, M.D., *Secretary*
330 Dartmouth Street
Boston

SEPTIC ABORTION FOLLOWING CURETTAGE

Mrs. D., a twenty-three-year-old white woman, was admitted to the hospital on April 7, 1911. On March 28 her expected catamenia failed to appear and on March 30 a catheter was passed into the uterus in order to produce an abortion. Two days later she started to flow, felt feverish and vomited. These symptoms continued, and the patient was sent to the hospital.

The family history was not taken. The patient's past history was uneventful. She had had one spontaneous delivery at term ten months previously; the pregnancy and puerperium had been normal. Catamenia began at fifteen, were always somewhat irregular, usually lasted eight days and were painless.

Examination showed a well-developed and nourished woman, who did not look very sick. The tongue was moist and slightly coated. The temperature was 101°F., and the pulse 94 and of good quality. The heart showed slight enlargement to the right, and there was a loud blowing systolic murmur which was heard over the

*A series of selected case histories by members of the section will be published weekly. Comments and questions by subscribers are solicited and will be discussed by members of the section.

precordia and transmitted to the axilla. The breath sounds were clear, and resonance was uniform over the whole chest. The abdomen was tender throughout, markedly so in the left lower quadrant, but there was no spasm.

On vaginal examination the cervix was found to be soft and patulous. The uterus was retroflexed, and the body soft and tender; the exact size could not be determined because of the tenderness. The vaults were somewhat tender, but no masses were palpated. There was a moderate discharge of bloody mucus from the vagina.

The following morning the temperature rose to 102°F. and curettage was decided on. Under ether anesthesia the cervix was dilated and the uterus curetted of a small amount of tissue which showed no chorionic villi or decidual cells on microscopic examination. A culture taken from the uterus showed no growth. The uterus was washed out before and after the curettage with 70 per cent alcohol, and a gauze strip saturated with iodine was left in the uterus for two hours.

The temperature remained elevated, fluctuating between 100 and 103°F., and the patient grew steadily worse. A blood culture taken on the fourth day after the curettage showed no growth. The white count at that time was 32,000, the hemoglobin 80 per cent. The pulse steadily climbed in rate and decreased in quality. The respirations also increased in rapidity, and a cough developed. Rales appeared in both chests, but there were no signs of consolidation. The abdomen became distended and rigid, and vomiting continued.

On the tenth day following curettage the temperature fell, the pulse became imperceptible, and the respirations rose to between 40 and 50. She represented the picture of severe general sepsis in extremis. Death occurred at six o'clock in the afternoon.

An autopsy showed purulent peritonitis, purulent salpingitis, purulent endometritis, atelectasis of both lungs, septic adrenal glands, dilatation of the right side of the heart, septic spleen and cloudy swelling of the kidneys.

Comment. The most important point in this case was the injudicious and probably harmful use of the curet in uterine infection. At the time when this patient was treated it was customary with many obstetricians to curette all patients with uterine sepsis, whether complicating miscarriage or full-term delivery. The harmful effects of this procedure are now recognized, and today this patient would have been treated more conservatively.

In this case the fact that the patient had skipped her period only ten days previously was entirely ignored; in this early period of gestation there was obviously but little tissue that could have been removed by the curet. Furthermore, there is no proof that this patient was pregnant. Neither the tissue removed at curettage nor the autopsy findings revealed evidences of pregnancy. This brings out another point of importance, namely, that the introduction of a catheter or other instrument into the uterus in the attempt to produce an abortion may result in severe and fatal infection even when the woman is not pregnant.

DEATHS

BAKER — Frederick H. Baker, M.D., of Worcester, died October 1. He was in his seventy-third year.

Born in Billerica, he attended the public schools there and received his degree from the Harvard Medical School in 1893. In 1894 he established the first diagnostic laboratory in Massachusetts at the Worcester City Hospital. The following year he was appointed medical examiner for the Eleventh District, a position which he held for forty-two years. Dr. Baker was director of laboratories at Memorial Hospital and Worcester State Hospital and was chief pathologist at the Worcester City Hospital. For thirty years he was head of the medical department at Clark University.

He held memberships in the American Medical Association and the Massachusetts Medical Society, being a former president of the Worcester District Medical Society. He was also a former president of the Massachusetts Medical Examiners Society.

His widow, two brothers and two sisters survive him.

BREWSTER — George W. W. Brewster, M.D., of Boston, died September 26. He was in his seventy-fourth year.

Born in Roxbury, he attended Roxbury Latin School, graduated from Harvard University in 1889 and received his degree from the Harvard Medical School in 1893. Dr. Brewster served his internship at the Massachusetts General Hospital and was a member of its staff from 1901 to 1926, being named a member of the board of consultation in the latter year.

He was a fellow of the Massachusetts Medical Society, the American Medical Association and the American College of Surgeons. He held memberships in the American Surgical Association, the New England Surgical Society, the Boston Surgical Society, the International Surgical Society and the Aesculapian Club.

His widow and three sons, William L., George W. W., and Dr. Henry H. Brewster, survive him.

FITCHET — Seth M. Fitchet, M.D., of Newton Centre, died September 26. He was in his fifty-third year.

Born in San Bernardino, California, he attended Mount Hermon School, Northfield, and graduated from Clark University, Worcester. He received his degree from the Harvard Medical School in 1921 and a B.P.H. from the Harvard School of Public Health two years later.

Dr. Fitchet had served as surgeon in the Department of Hygiene at Harvard University, assistant surgeon at the Massachusetts General Hospital, consultant at the Massachusetts Eye and Ear Infirmary, and visiting surgeon at the Children's, New England Baptist and Faulkner hospitals.

His fellowships included the Massachusetts Medical Society, American Medical Association and the American College of Surgeons. He was a member of the Boston Orthopaedic Club and the Aesculapian Club.

His widow, two sons and a daughter survive him.

JORDAN — MICHAEL M. JORDAN, M.D., of Worcester, died September 30. He was in his fifty-sixth year.

Born in Wayzata, Minnesota, he received his degree from the University of Minnesota College of Homeopathic Medicine and Surgery in 1905. The following year he joined the staff of the Westboro State Hospital as a psychiatrist. He was a member of the staffs of the Worcester City and St. Vincent hospitals and was a consultant at the Hahnemann Hospital. Dr. Jordan had been connected with the State Industrial Accident Board for many years.

Dr. Jordan held fellowships in the Massachusetts Medical Society and the American Medical Association. He was a member of the American Psychiatric Association, the New England Society of Psychiatry and a diplomat of the American Board of Psychiatry and Neurology.

His widow, a son, two daughters and several brothers and sisters survive him.

LUCE — LEROY A. LUCE, M.D., of Boston, died September 27. He was in his sixty-first year.

Born in Randolph, Vermont, he attended Tufts College Medical School, receiving his degree in 1906. He started practice in Boston and spent a great deal of time in developing a sine-wave machine for use in the treatment of infantile paralysis.

Dr. Luce was a fellow of the Massachusetts Medical Society and the American Medical Association, and held memberships in the American Psychiatric Association and the New England Society of Psychiatry.

He was unmarried. A niece survives him.

MISCELLANY

RÉSUMÉ OF COMMUNICABLE DISEASES IN MASSACHUSETTS FOR AUGUST, 1939

DISEASES	AUGUST 1939	AUGUST 1938	FIVE-YEAR AVERAGE*
Anterior poliomyelitis	15	4	130
Chickenpox	121	99	101
Diphtheria	13	8	23
Dog bite	1208	1110	1077
Dysentery, bacillary	12	22	38
German measles	16	34	42
Gonorrhea	432	433	542
Lobar pneumonia	78	137	119
Measles	282	258	164
Meningococcus meningitis	2	4	5
Mumps	83	143	160
Paratyphoid B fever	3	10	9
Scarlet fever	83	125	149
Syphilis	367	422	451
Tuberculosis, pulmonary	316	320	309
Tuberculosis, other forms	27	37	35
Typhoid fever	11	11	15
Undulant fever	0	5	4
Whooping cough	440	399	501

*Based on figures for preceding five years.

RARE DISEASES

Anterior poliomyelitis was reported from: Adams, 1; Boston, 1; Brockton, 1; Everett, 3; Malden, 3; Newton, 1; Templeton, 1; Wellesley, 1; Winchester, 1; Worcester, 2; total, 15.

Diphtheria was reported from: Boston, 5; Cambridge, 1; Fall River, 1; Gloucester, 1; Lawrence, 1; Malden, 1; New Bedford, 2; Watertown, 1; total, 13.

Dysentery, amebic, was reported from: Springfield, 1; Worcester, 1; total, 2.

Dysentery, bacillary, was reported from: Belmont, 1; Boston, 3; Canton, 2; Chelsea, 1; Conway, 1; Danvers, 2; Fall River, 1; Worcester, 1; total, 12.

Infectious encephalitis was reported from: Westfield, 1; total, 1.

Malaria was reported from: Newton, 1; Worcester, 1; total, 2.

Meningococcus meningitis was reported from: Northbridge, 1; Worcester, 1; total, 2.

Paratyphoid B fever was reported from: Boston, 1; Lynn, 1; West Stockbridge, 1; total, 3.

Pellagra was reported from: Boston, 1; Brockton, 1; total, 2.

Septic sore throat was reported from: Belmont, 1; Boston, 2; Everett, 1; Fall River, 1; total, 5.

Tetanus was reported from: Longmeadow, 1; Pepperell, 1; South Hadley, 1; total, 3.

Trachoma was reported from: Malden, 1; total, 1.

Typhoid fever was reported from: Boston, 2; Lowell, 1; Malden, 1; New Bedford, 1; North Reading, 1; Quincy, 3; Somerville, 1; Springfield, 1; total, 11.

Anterior poliomyelitis continued to show low incidence.

Pulmonary tuberculosis, measles, and chickenpox were reported above the five-year average.

Scarlet fever showed record low incidence for this or any other month.

The incidences of meningococcus meningitis and undulant fever were not remarkable.

Tuberculosis (other forms) was reported at a record low figure.

Lobar pneumonia, whooping cough, mumps, diphtheria and German measles were reported below the five-year average.

Typhoid fever was reported at record low figures except for the years 1937 and 1938, which were equaled.

The reported incidence of dog bite showed a record high figure. Animal rabies showed record low incidence. Foci in the vicinity of Franklin and Foxborough were active.

CORRESPONDENCE

AGENCIES AND INDIVIDUALS ENTITLED TO RECEIVE INFORMATION PERTAINING TO GONORRHEA AND SYPHILIS

To the Editor: Physicians frequently request information from this department as to who is entitled to information concerning infection with syphilis or gonorrhea in their patients.

The list of individuals and agencies that under the law are entitled to such information on demonstration of good faith has recently been revised to meet modern requirements, and is appended.

PAUL J. JAKMAUH, M.D.,
Commissioner of Public Health.

State House,
Boston.

* * *

Under the provisions of the General Laws, Chapter 111, Section 119, the Commissioner of Public Health has declared that the following agencies and individuals are entitled on demonstration of good faith to receive information from hospital, dispensary, laboratory and morbidity reports pertaining to gonorrhea or syphilis. "Demonstration of good faith" is intended to mean that the agency or individual desiring the information intends to

use it to the patient's advantage and not merely to satisfy curiosity or to the patient's disadvantage, except as health officers or other officials may be obliged to control the patient for the protection of the public health.

NATIONAL, STATE AND MUNICIPAL AGENCIES AND OFFICERS

1. Boards of health and health officers
2. Departments of correction (parole officers)
3. Departments of education (physicians, nurses and divisions of blind)
4. Departments of industrial accidents
5. Departments of mental diseases
6. Departments of probation (probation officers)
7. Departments of soldiers' relief
8. Departments of public welfare (divisions of aid and relief)
9. Hospitals
10. Other institutions (superintendents and physicians)
11. Genitoinfectious disease clinics
12. National Guard (Medical Corps)
13. U. S. Army, Navy, Marines (Medical Corps)
14. U. S. Department of the Interior (Bureau of Pensions)
15. U. S. Veterans' Bureau
16. U. S. Public Health Service

PRIVATE AGENCIES AND INDIVIDUALS

1. Hospitals
2. Physicians, for cases in their own private practices only
3. Industries (physicians only)
4. Private schools (physicians only)
5. Visiting nurse associations (incorporated associations only, having at least one full-time nurse)
6. Child welfare and child-placing agencies (incorporated agencies only, having at least one full-time nurse or social worker)
7. Family welfare agencies (incorporated agencies only, having at least one full-time social worker or nurse)
8. American Red Cross (only those chapters having at least one full-time social worker or nurse)
9. Florence Crittenton League and Welcome House
10. The patient or his guardian

EXECUTORS OR ADMINISTRATORS OF ESTATES

Only on the presentation by said executor or administrator of a reasonable need for the information, said evidence of reasonable need to be satisfactory to the agency from which the information is requested.

INSURANCE COMPANIES

1. If the beneficiary of the insurance is living (as in compensation insurance, accident insurance, and so forth) a copy of the patient's record may be given or sent to the patient, himself, at his request, or if he be a minor, to his parent or legal guardian. The patient may then divulge the record to the insurance company or not as he sees fit.
2. If the patient is deceased (in the case of life insurance, and so forth), a copy of the patient's record may be given or sent to the beneficiary who may then divulge the information to the insurance company or not as he sees fit. Presumably the identification of the beneficiary applying for the record may be established by the insurance company, preferably in writing.

Any agency or individual not included within the provisions of this list may receive information concerning syphilis and gonorrhea on court order only.

PAUL J. JAKMAUH, M.D.,
Commissioner of Public Health.

June, 1939.

DENTISTRY'S PLACE IN THE NATIONAL HEALTH PROGRAM

To the Editor: In the latter part of June, an invitation was extended to the members of the Massachusetts Medical Society, through its secretary, to attend a meeting of the Metropolitan District Dental Society, at the Hotel Vendome, Boston, on Wednesday, October 25. At this time, Dr. R. M. Walls, chairman of the Economic Committee of the American Dental Association, is to present a timely paper on "Dentistry's Place in the National Health Program." Are the members of the Massachusetts Medical Society interested in socialized dentistry? How will they be affected if the Wagner Act is passed in its present form? They should come and hear Dr. Walls, and have their questions answered by him.

Dinner will be served at six o'clock at $1.50 per plate. It will be appreciated if members wishing to attend the dinner will send their reservations accompanied by checks to the Executive Office, 106 Marlborough Street, Boston, not later than October 24, so that proper covers and seating arrangements at the meeting will be provided for all. Make checks payable to the Metropolitan District Dental Society. Members of the Massachusetts Medical Society will be welcome to hear the speaker at about eight o'clock if they do not wish to attend the dinner.

EDWIN J. MORSE, *Secretary,*
Metropolitan District Dental Society.

106 Marlborough Street,
Boston.

ARTICLES ACCEPTED BY THE AMERICAN MEDICAL ASSOCIATION COUNCIL ON PHARMACY AND CHEMISTRY

To the Editor: In addition to the articles enumerated in our letter of August 11 the following have been accepted:

Abbott Laboratories
Tablets Cevitamic Acid — Abbott, 0.05 gm.

Parke, Davis & Co.
Ampules Adrenalin in Oil, 1 cc.

Riedel-de Haen, Inc.
Ampules Solution Decholin-Sodium, 20 per cent, 3 cc.

Sharp & Dohme
Immune Globulin (Human)

Smith–Dorsey Co.
Tablets Nicotinic Acid, 50 mg.
Tablets Ascorbic Acid, 25 mg.

Frederick Stearns & Co.
Stearns Viosterol (A.R.P.I. Process) in Oil
Stearns Cod Liver Oil Concentrate in Vegetable Oil
Stearns Cod Liver Oil Concentrate Capsules, 3 min.

Stearns Cod Liver Oil Vitamin Concentrate Tablets
Stearns Halibut Liver Oil Plain
Stearns Halibut Liver Oil Plain, Capsules, 3 min.
Stearns Halibut Liver Oil with Viosterol (A.R.P.I. Process)
Stearns Halibut Liver Oil with Viosterol (A.R.P.I. Process) (with other fish liver oils) Capsules

The following product has been accepted for inclusion in the "List of Articles and Brands Accepted by the Council But Not Described in N.N.R." (*New and Nonofficial Remedies*, 1939, p. 528):

The Emergency Antidote Kit Company
Emergency Antidote Kit (Jacobson)

PAUL NICHOLAS LEECH, *Secretary*.

535 North Dearborn Street,
Chicago, Illinois.

NOTICES

REMOVALS

J. L. GRUND, M.D., announces the removal of his office to 520 Beacon Street, Boston.

MICHAEL E. MCGARTY, M.D., announces the removal of his office from 312 Beacon Street, Boston, to 131 Bay State Road, Boston.

FRANKLIN S. NEWELL, M.D., announces the removal of his office to 330 Dartmouth Street, Boston.

JOHN L. NEWELL, M.D., announces the removal of his office to 330 Dartmouth Street, Boston.

HERBERT SHERWIN, M.D., announces the removal of his office to 483 Beacon Street, Boston.

BOSTON CITY HOSPITAL

The monthly clinicopathological conference will be held at the Boston City Hospital on Wednesday, October 11, at 12 o'clock noon, in the Pathological Amphitheater.

JOSEPH E. HALLISEY, M.D., *Secretary*,
Medical Staff.

BOSTON DOCTORS' SYMPHONY ORCHESTRA

The Boston Doctors' Symphony Orchestra will rehearse under Jacobus Langendoen of the Boston Symphony Orchestra every Thursday at 8:30 p.m., beginning October 19. Those interested in becoming members should communicate with Dr. Julius Loman, Pelham Hall Hotel, Brookline (BEA 2430).

SOUTH END MEDICAL CLUB

The next meeting of the South End Medical Club will be held at the headquarters of the Boston Tuberculosis Association, 554 Columbus Avenue, Boston, on Tuesday, October 17, at 12 o'clock noon. Dr. Leland S. McKittrick will speak on "The Diagnosis and Treatment of Acute Intestinal Obstruction."

Physicians are cordially invited to attend.

JOHN B. HALL, M.D., *Secretary*.

PETER BENT BRIGHAM HOSPITAL

A joint medical and surgical clinic on abdominal pain will be conducted by Drs. Elliott Cutler and Soma Weiss on Wednesday, October 11, at 2:00 p.m. A clinicopathological conference, conducted by Dr. Cutler, will follow.

Physicians and students are cordially invited to attend.

JOSEPH H. PRATT DIAGNOSTIC HOSPITAL

Bennet Street, Boston
Lecture Hall, 9–10 a.m.

MEDICAL CONFERENCE PROGRAM

Friday, October 6 — Medico-Legal Aspects of Heart Disease. Dr. S. A. Levine.
Saturday, October 7 — Hospital Case Presentation. Dr. S. J. Thannhauser.
Tuesday, October 10 — Oral Infection and Its Sequelae. Dr. R. H. Norton.
Wednesday, October 11 — Hospital Case Presentation. Dr. S. J. Thannhauser.
Friday, October 13 — The Care and Diagnosis of Head Injuries During Their Convalescence. Dr. Donald Munro.
Saturday, October 14 — Hospital Case Presentation. Dr. S. J. Thannhauser.
Tuesday, October 17 — Allergy Clinic: Discussion of some histories and cases. Dr. E. A. Brown.
Wednesday, October 18 — Non-Hemolytic Familial Jaundice. Dr. William Dameshek.
Thursday, October 19 — Hospital Case Presentation. Dr. S. J. Thannhauser.
Friday, October 20 — Heredity and Environment in Relationship to Intelligence, Personality and Mental Disease. Dr. Abraham Myerson.
Saturday, October 21 — Hospital Case Presentation. Dr. S. J. Thannhauser.
Tuesday, October 24 — Endocrine Clinic. Dr. C. H. Lawrence.
Wednesday, October 25 — Hospital Case Presentation. Dr. S. J. Thannhauser.
Thursday, October 26 — Ventricular Fibrillation as the Mechanism of Sudden Death in Patients with Coronary Occlusion. Dr. Henry Miller.
Friday, October 27 — Title to be announced. Dr. A. O. Hampton.
Saturday, October 28 — Hospital Case Presentation. Dr. S. J. Thannhauser.

HARVARD MEDICAL SOCIETY

The next meeting of the Harvard Medical Society will be held on Tuesday, October 10, in the amphitheater of the Peter Bent Brigham Hospital (Shattuck Street entrance), at 8:15 p.m.

PROGRAM

Presentation of cases.

A New Surgical Method to Improve the Blood Supply to the Heart in Coronary Disease. Dr. Mercier Fauteux, of Montreal, clinical assistant in surgery, Royal Victoria Hospital.

Medical students and physicians are cordially invited to attend.

ROBERT M. ZOLLINGER, M.D., *Secretary*.

FIFTH POSTGRADUATE SEMINAR IN NEUROPSYCHIATRY

The Metropolitan State Hospital, Waltham, recently announced the opening of the Fifth Postgraduate Seminar in Neuropsychiatry.

The course consists of two units: neurology, October 2 to December 19, and psychiatry, January 8 to March 25. It is designed as a comprehensive review course, not only for physicians preparing for the examinations of the American Board of Psychiatry and Neurology, but for those desirous of additional training in the specialty. The teaching staff comprises a number of recognized specialists in this field throughout the state and is under the direction of Dr. Roy D. Halloran, superintendent, Metropolitan State Hospital, and Dr. Paul I. Yakovlev, clinical director, Walter E. Fernald State School.

SUFFOLK DISTRICT MEDICAL SOCIETY

A meeting of the Suffolk District Medical Society will be held at the Boston Medical Library, 8 Fenway, on Wednesday, October 25, at 8:15 p.m.

PROGRAM

Stated meeting.

Scientific meeting:

Obesity and Menstrual Disturbance: Endocrine and endometrial studies. Drs. Charles H. Lawrence, Joseph T. Smith and Nicholas T. Werthessen.

Clinical Studies in Primary Malignancy of the Lung. Dr. Richard H. Overholt.

Xanthomatosis. Dr. Siegfried J. Thannhauser.

Observations on Heart Disease. Dr. Samuel H. Proger.

Secretin Test of Pancreatic Function. Dr. Joseph H. Pratt.

REGINALD FITZ, M.D., *President,*
MILTON H. CLIFFORD, M.D., *Secretary.*

NEW ENGLAND DERMATOLOGICAL SOCIETY

The next regular meeting of the New England Dermatological Society will be held in Hartford, Connecticut, on Wednesday, October 18. Members of the society are invited to luncheon at the Municipal Hospital at 1:45 p.m., following which cases will be demonstrated. Dinner will be held at the Wampanoag Country Club.

Reservations for transportation will be accepted at once by the secretary, Dr. Bernard Appel, 483 Beacon Street, Boston.

NEW ENGLAND SOCIETY OF PHYSICAL MEDICINE

The New England Society of Physical Medicine announces the election of the following officers for the year 1939–1940: Dr. Henry A. Tadgell, of Wrentham, president; Dr. George B. Carr, of Lynn, first vice-president; Dr. David T. Percy, of Arlington, second vice-president; Dr. William D. McFee, of Boston, secretary; Dr. Howard Moore, of Boston, treasurer; Drs. Charles W. McClure, of Boston, John L. O'Toole, of Haverhill, Charles W. Bruninghaus, of Worcester, A. Carleton Potter, of Boston, William G. Curtis, of Wollaston, and Claude L. Payzant, of Boston, councilors.

FOUR COUNTY MEDICAL SOCIETY

The annual meeting of the Four County Medical Society, comprising the district societies of Berkshire, Franklin, Hampden and Hampshire, will be held on Tuesday, October 10, in the auditorium of the Springfield Museum of Fine Arts, 49 Chestnut Street, Springfield. The meeting is scheduled for 9:30 a.m.; luncheon will be served at the Hotel Stonehaven at 1:00 p.m., following which Dr. Walter G. Phippen will speak briefly.

The meeting will be in the form of a symposium, "Pain: Its significance in diagnosis and prognosis." Dr. Lewis M. Hurxthal will discuss the viewpoint of general medicine; Dr. Arthur W. Allen, general surgery; Dr. Joe V. Meigs, obstetrics and gynecology; and Dr. Foster Kennedy, neurology.

All physicians of Western Massachusetts are welcome to attend.

GEORGE L. SCHADT, M.D., *President,*
W. FENN HOYT, M.D., *Secretary.*

SOCIETY MEETINGS AND CONFERENCES

CALENDAR OF BOSTON DISTRICT FOR THE WEEK BEGINNING MONDAY, OCTOBER 9

TUESDAY, OCTOBER 10

*9–10 a.m. Oral Infection and Its Sequelae. Dr. R. H. Norton. Joseph H. Pratt Diagnostic Hospital.

*10 a.m.–12:30 p.m. Boston Dispensary tumor clinic.

*8:15 p.m. Harvard Medical Society. Peter Bent Brigham Hospital (Shattuck Street entrance).

WEDNESDAY, OCTOBER 11

*9–10 a.m. Hospital case presentation. Dr. S. J. Thannhauser. Joseph H. Pratt Diagnostic Hospital.

*12 m. Clinicopathological conference. Children's Hospital Amphitheater.

12 m. Monthly clinicopathological conference. Boston City Hospital. Pathological amphitheater.

*2 p.m. Joint medical and surgical clinic on abdominal pain. Peter Bent Brigham Hospital.

FRIDAY, OCTOBER 13

*9–10 a.m. The Care and Diagnosis of Head Injuries During Their Convalescence. Dr. Donald Munro. Joseph H. Pratt Diagnostic Hospital.

*10 a.m.–12:30 p.m. Boston Dispensary tumor clinic.

SATURDAY, OCTOBER 14

*9–10 a.m. Hospital case presentation. Dr. S. J. Thannhauser. Joseph H. Pratt Diagnostic Hospital.

*10 a.m.–12 m. Medical staff rounds of the Peter Bent Brigham Hospital. Conducted by Dr. Soma Weiss.

*Open to the medical profession.

OCTOBER 5 — Faulkner clinicopathological conference. Page 513, issue of September 28.

OCTOBER 6–28 — Joseph H. Pratt Diagnostic Hospital, Medical Conference Program. Page 545.

OCTOBER 10 — Four County Medical Society. Notice above.

OCTOBER 10 — Harvard Medical Society. Page 545.

OCTOBER 11 — Monthly clinicopathological conference, Boston City Hospital. Page 545.

OCTOBER 11 — Joint medical and surgical clinic on abdominal pain, Peter Bent Brigham Hospital. Page 545.

OCTOBER 13 — Pentucket Association of Physicians. 8:30 p.m., Hotel Bartlett, Haverhill.

OCTOBER 15–20 — American Public Health Association. Page 441, issue of September 14.

OCTOBER 17 — South End Medical Club. Page 545.

OCTOBER 18 — New England Dermatological Society. Notice above.

OCTOBER 23–NOVEMBER 3 — New York Academy of Medicine. Page 977, issue of June 8.

OCTOBER 25 — Metropolitan District Dental Society. Page 544.

NOVEMBER 8, 9 — New England Society of Physical Medicine, in conjunction with the Academy of Physical Medicine, Hotel Kenmore, Boston. Program to be announced.

DECEMBER 2 — American Board of Obstetrics and Gynecology. Page 1019, issue of June 15.

JANUARY 6, JUNE 8–11, 1940 — American Board of Obstetrics and Gynecology. Page 160, issue of July 27.

MARCH 7–9, 1940 — The New England Hospital Association. Hotel Statler, Boston.

MAY 14, 1940 — Pharmacopoeial Convention. Page 894, issue of May 25.

JUNE 7–9, 1940 — American Board of Obstetrics and Gynecology. Page 1019, issue of June 15.

DISTRICT MEDICAL SOCIETY

SUFFOLK

OCTOBER 25 — Page 546.

NOVEMBER 2 — Censors' meeting. Page 441, issue of September 14.

BOOKS RECEIVED FOR REVIEW

Radiologie Clinique du Coeur et des Gros Vaisseaux. Ch. Laubry, P. Cottenot, D. Routier, and R. Heim de Balsac. 2 vol., 340 pp. Paris: Masson et Cie, 1939. 460 Fr. fr.

Civilization against Cancer. Clarence C. Little. 150 pp. New York and Toronto: Farrar & Rinehart, Inc., 1939. $1.50.

Attaining Womanhood: A doctor talks to girls about sex. George W. Corner. 95 pp. New York and London: Harper & Brothers, 1939. $1.00.

Sclerosing Therapy: The injection treatment of hernia, hydrocele, varicose veins and hemorrhoids. Edited by Frank C. Yeomans. 337 pp. Baltimore: The Williams & Wilkins Co., 1939. $6.00.

Textbook of Medical Treatment. By various authors. Edited by D. M. Dunlop, L. S. P. Davidson, and J. W. McNee. 1127 pp. Baltimore: The Williams & Wilkins Co., 1939. $8.00.

Physiotherapy in Medical Practice. Hugh Morris. 276 pp. Baltimore: The Williams & Wilkins Co., 1939. $4.50.

The International Medical Annual: A year book of treatment and practitioner's index. Edited by H. Letheby Tidy and A. Rendle Short. Fifty-seventh year. 602 pp. Baltimore: The Williams & Wilkins Co., 1939. $6.00.

Asthma. Frank Coke. With the collaboration of Harry Coke. Second edition. 266 pp. Baltimore: The Williams & Wilkins Co., 1939. $4.00.

Manual of Urology. R. M. LeComte. Second edition. 295 pp. Baltimore: The Williams & Wilkins Co., 1939. $4.00.

The Harvey Lectures: Delivered under the auspices of the Harvey Society of New York, 1938–1939. Series XXXIV. 279 pp. Baltimore: The Williams & Wilkins Co., 1939. $4.00.

The Treatment of Rheumatism in General Practice. W. S. C. Copeman. Third edition. 276 pp. Baltimore: The Williams & Wilkins Co., 1939. $4.00.

Essentials of Fevers. Gerald E. Breen. 273 pp. Baltimore: The Williams & Wilkins Co., 1939. $3.00.

BOOK REVIEWS

New and Nonofficial Remedies, 1939: Containing descriptions of the articles which stand accepted by the Council on Pharmacy and Chemistry of the American Medical Association on January 1, 1939. 617 pp. Chicago: American Medical Association, 1939. $1.50.

The thirty-second annual volume of this invaluable series contains descriptions of the articles which stand accepted by the Council on Pharmacy and Chemistry of the American Medical Association as of January 1, 1939. The volume consists of 617 pages of text and 67 pages devoted to a bibliographical index to proprietary and unofficial articles not included in the main work. The first volume of the series published in 1907 had 143 pages of text and the articles were arranged alphabetically; this is in contrast to the current volume of 684 pages in which the various articles are grouped into classes of remedies having similar composition or actions, with a general index of individual articles.

The Council has omitted eight remedies from the present volume because of conflict with the rules governing the recognition of articles; and a considerable number have been dropped because they are off the market. The statements concerning the action, use and dosage and the composition, standard of purity, identity, strength and physical properties of a number of articles have been revised. The omitted articles, as well as the original descriptions of revised articles, can be found in previous volumes of the series. The complete series should be available in all the large centers of the country for reference purposes.

The compilation includes acceptable proprietary substances and their preparations, proprietary mixtures of importance, non-proprietary non-official articles of importance and simple pharmaceutical preparations. Diagnostic reagents which are not used in or on the human body and protein diagnostic preparations are omitted except when special request has been made to the Council to determine the status of the article.

Every product in the book is subject to the official rules of the Council. Constant and critical consideration of its contents provides a valuable list of acceptable new preparations for use in treatment. Noteworthy revisions are: local anesthetics; bismuth compounds; organs of animals (ovaries and parathyroid); vitamins and vitamin preparations; and liver and stomach preparations. Of especial interest are the groups of serums and vaccines, and the brands of sulfanilamide.

The work is kept up to date by publication of descriptions in the *Journal of the American Medical Association* and by the issue of two supplements during the year.

Annual Reprint of the Reports of the Council on Pharmacy and Chemistry of the American Medical Association for 1938: With the comments that have appeared in the Journal. 123 pp. Chicago: American Medical Association, 1939. $1.00.

This small volume contains reports of the Council which were adopted and authorized for publication during 1938. There are final reports on articles rejected by the Council and on others omitted from *New and Non-Official Remedies,* preliminary reports on remedies submitted for consideration, and supplemental reports on therapeutic or pharmacological problems of remedies being investigated by the Council.

Dr. Perrin H. Long, a member of the Council, has written a special article on sulfapyridine (accepted by the Council), which is of especial interest. Reports of particular interest are those on allantoin, a preparation of glyoxyldiureid offered as a substitute for the surgical use of maggots, on colloidal sulphur in the treatment of chronic arthritis, on ergonovine, including a careful study of the relation of this newly discovered principle to ergot therapy in general and on picrotoxin in poisoning by the barbiturates.

The reports are well written and documented with the available literature on the subjects under discussion.

Treatment by Manipulation. A. G. Timbrell Fisher. Third edition. 255 pp. New York: Paul B. Hoeber, Inc., 1939. $3.75.

This third edition represents "thoroughly revised" and "extensively rewritten" previous editions and the addition of new chapters on "The Cult of Osteopathy" and "The Prevention of Adhesions." In the preface to the first

edition the author made special acknowledgment to Sir Arthur Keith and Sir Robert Jones and to the Medical Research Council for help and valuable suggestions.

Because of the existing extensive literature dealing with fractures and dislocations, these subjects are not especially considered. The introduction includes a short history of the art of bone-setting from the time of Hippocrates to that of Hugh Owen Thomas and Sir Robert Jones, and a plea is made for more systematic teaching of the principles and practice of manipulative therapy in both undergraduate and postgraduate education.

In the chapter on "The Cult of Osteopathy" the author acknowledges his indebtedness to a recent book by Drs. Charles Hill and H. A. Clegg, entitled *What is Osteopathy?* (London: J. M. Dent and Sons, Ltd. 1938). Your reviewer has read this book carefully, and believes that every "regular" physician should read it. Although it is a scathing and convincing indictment of the lack of any scientific basis of the cult, it is a fair and factual presentation of this American-born system of therapy. Fisher's chapter touches the high points of this valuable volume of Drs. Hill and Clegg, and is an excellent *apértif* for the hearty meal which their book offers.

Fisher classifies the cases appropriate for medical manipulation into four types, which often present combinations: cases with adhesions; functional or hysterical cases; unreduced dislocations or subluxations; and miscellaneous groups. The cases with adhesions are again subdivided into intra-articular, articular and periarticular groups. The functional or hysterical cases are divided as follows: a purely functional group; a group originally functional but complicated by long disease; a group with a strong functional element superimposed on organic disease; and a fourth group of malingering cases. Warnings are given as to the dangers of manipulative attempts to reduce long-standing dislocations without the aid of open surgery, and in the miscellaneous type are included adhesions involving muscle, fascia, and so forth.

In the chapter on "The Prevention of Adhesions" the author reports his earlier work and the work of Willems demonstrating that even in acute and subacute cases intelligent and gentle movements, either voluntary or manipulative, may aid in the absorption of adhesions forming exudates, and may provide better drainage after surgery. The role of movement in chronic rheumatic diseases and in the prevention of deformity in fractures is discussed.

The diagnosis of adhesions is based on limitation of movement, pain, weakness, tenderness, recurring effusions and x-ray examination. The danger of any manipulation of a tuberculous joint is properly stressed.

In Chapter VI the general principles underlying the art of manipulation are discussed. "The use of extreme force is never necessary," both because of danger to surrounding structures and because the tearing of these adhesions usually leads to a reactionary subsequent joint stiffness. Merely putting a joint through its normal ranges of movement is not sufficient; a twisting movement by the operator is usually required, varying in nature in the different joints. Complete relaxation of the patient is necessary, and anesthesia often advisable. Aftertreatment, both physical and psychological, is of great importance, the latter especially with functional patients. In this chapter there is a discussion of the pros and cons of treatment of chronic arthritis by manipulation.

The succeeding chapters discuss the lesions of the lower extremities, the upper extremities, the spine and the sacroiliac joints for which manipulative treatment is often advisable with the strong hope of betterment or cure. The methods appropriate to the different lesions and the different joints are described and illustrated. The book concludes with two chapters, "The Dangers of Manipulation in Unsuitable Cases" and further details as to aftertreatment. As Fisher says, "The cure or alleviation of various disabilities by manipulation depends upon a delicacy and sensitiveness of touch which is to a certain extent 'inborn'. . . .These gifts are often inherited, but it is a serious error to assume that unqualified practitioners have any monopoly of the necessary gifts."

The reviewer is of the opinion that the average American surgeon dealing with patients presenting lesions of the bones and joints employs manipulative methods of therapy less frequently and less successfully than the average British surgeon dealing with similar lesions. It is quite likely that we may sit at the feet of Hippocrates, John Hunter, Sir James Paget, Lucas Championnière and Sir Robert Jones and learn wisdom. We may even separate the grain from the chaff as Wharton Hood did from the successful bonesetter, Hutton. The reviewer recommends the book.

The Physiology and Pharmacology of the Pituitary Body. H. B. Van Dyke. Vol. 2. 402 pp. Chicago: The University of Chicago Press, 1939. $4.50.

This book, the second of a series, is a careful and reliable review of the work of 1935–1938 in the somewhat confused field relating to the pituitary body. The author presents the essential clinical and experimental data of articles "flowing at the rate of approximately 750 yearly" and finishes each chapter with a summary of the reasonably proved facts. While the scope is largely physiological, to the clinician the summaries should be very welcome and pleasant reading and the main text should at least be useful for reference. The book gives an excellent epitome of recent work for the more academic reader and has the advantage of including the criticism of an expert.

The Synovial Membrane and the Synovial Fluid: With special reference to arthritis and injuries of the joints. David H. Kling. 299 pp. Los Angeles: Medical Press, 1938. $5.00.

The author has made a very thorough study of the synovial membrane and synovial fluid. He is also familiar with whatever other work has been done in this subject, and one of the interesting factors in his presentation is his constant mixing of his own work in observation with the work of others along the same line. The bibliography is complete and is well used in the text itself.

The laboratory study of the synovial fluid is of increasing importance in the study of arthritis and injuries to joints. This book gives an important place to practical considerations of laboratory methods. It is well written, concise and complete.

Health Officers' Manual: General information regarding the administrative and technical problems of the health officer. J. C. Geiger. 148 pp. Philadelphia and London: W. B. Saunders Co., 1939. $1.50.

This small book is an attempt to outline municipal administrative procedures in public health. Its appeal is naturally limited. Of particular interest are graphic charts of the epidemiology of brucellar infections, plague, leptospirosis, relapsing fever, rickettsial infections and psittacosis, and two charts depicting the oral signs and symptoms of some fifty diseases. Aside from these, there is little of interest for the general practitioner of medicine.

The municipal health officer, however, can obtain advice on various administrative procedures which should be extremely helpful.